AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

Town of Ayer
Board of Selectmen

is authorized to discharge from the facility located at

Ayer Wastewater Treatment Facility
Brook Street
Ayer, MA 01432

to receiving water named

Nashua River (Segment MA81-05)

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.

This permit expires at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on February 28, 2006.

This permit consists of 18 pages in Part I including effluent limitations and monitoring requirements, 25 pages in Part II including NPDES Part II Standard Conditions, and Attachment A – Freshwater Chronic Toxicity Test Procedure and Protocol (March 2013), B – Freshwater Acute Toxicity Test Procedure and Protocol (February 2011), C - Reassessment of Technically Based Local Limits, D - NPDES Permit Requirement for Industrial Pretreatment Annual Report, and E - Summary of Required Report Submittals

Signed this 29th day of December, 2014

/S/SIGNATURE ON FILE
_____
Ken Moraff, Acting Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

/S/SIGNATURE ON FILE
_____
David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to Nashua River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS [3]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Flow[2]	*********	*********	1.79 MGD	*********	Report MGD	Continuous	Recorder
Flow[2]	*********	*********	Report MGD	*********	*********	Continuous	Recorder
BOD_5 [4]	448 lb/Day 204 kg/Day	672 lb/Day 305 kg/Day	30 mg/l	45 mg/l	Report mg/l	1/Week	24-Hour Comp[5]
TSS [4]	448 lb/Day 204 kg/Day	672 lb/Day 305 kg/Day	30 mg/l	45 mg/l	Report mg/l	1/Week	24-Hour Comp[5]
pH Range[1]	6.5 - 8.3 SU (See Permit Paragraph I.A.1.b.)					1/Day	Grab
Escherichia Coli [1,6]	*********	*********	126 cfu /100 ml	*********	409 cfu /100 ml	1/Week	Grab
Total Residual Chlorine[1,7]	*********	*********	0.14 mg/l	*********	0.25 mg/l	1/Day (When In Use)	Grab
Total Phosphorus (April 1- October 31)	*********	*********	200 ug/l	*********	*********	2/Week	24-Hour Comp[5]
Total Phosphorus (November 1- March 31)	*********	*********	1.0 mg/l	*********	*********	1/Week	24-Hour Comp[5]
Orthophosphorus, Dissolved (November 1- March 31)	*********	*********	Report mg/l	*********	*********	1/Week	24-Hour Comp[5]

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A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from treated effluent from outfall serial number **001** to the Nashua River. Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS[3]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Dissolved Oxygen (April 1-October 31)	Not Less Than 6.0 mg/l					1/Day	Grab
Total Recoverable Copper[8, 14]	*********	**********	4.1 ug/l	*********	5.6 ug/l	1/Month	24-Hr Comp[5]
Total Recoverable Lead[8, 14]	*********	**********	1.0 µg/l	*********	Report ug/l	4/Year	24-Hr Comp[5]
Total Recoverable Aluminum[14]	*********	**********	87 µg/l	*********	Report ug/l	1/Month	24-Hr Comp[5]
Whole Effluent Toxicity [9,12]	Acute LC_{50} ≥100%[10] Chronic C-NOEC ≥ 7.7%[11]					4/Year	24-Hour Composite[5]
Hardness[13]	*********	*********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Ammonia Nitrogen as N[13]	*********	*********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Total Recoverable Cadmium[13]	*********	*********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Total Recoverable Nickel[13]	*********	*********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Total Recoverable Zinc[13]	*********	*********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Total Recoverable Copper[8, 13]	*********	**********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Total Recoverable Lead[8, 13]	*********	**********	*********	*********	Report mg/l	4/Year	24-Hr Comp[5]
Total Recoverable Aluminum[13]	*********	**********	*********	*********	Report ug/l	4/Year	24-Hr Comp[5]

Footnotes:

1. Required for State Certification.

2. Report annual average, monthly average, and the maximum daily flow. The limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flows of the previous eleven months.

3. Effluent sampling shall be collected at the point specified below. Any change in sampling location must be reviewed and approved in writing by EPA and MassDEP.

FLOW	Magnetic flow meter prior to effluent cascade
BOD_5 and TSS (Influent)	Head works Influent chamber
BOD_5 and TSS (Effluent)	Effluent line after disinfection UV vessels, prior to flow meter and before chlorination (After dechlorination when CL_2 is in use)
pH Range	At cascade prior to receiving stream
Total Residual Chlorine	At cascade prior to receiving stream
Escherichia Coli	At cascade prior to receiving stream
Dissolved Oxygen	At cascade prior to receiving stream
Whole Effluent Toxicity (Effluent)	At cascade prior to receiving stream
Whole Effluent Toxicity (Dilution Water)	Upstream side of discharge in the Nashua River
Total Phosphorus	At cascade prior to receiving stream
Orthophosphorus, Dissolved	At cascade prior to receiving stream

A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report.

All samples shall be tested using the analytical methods found in 40 CFR § 136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR § 136.

4. Sampling required for influent and effluent.

5. 24-hour composite samples will consist of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. The monthly average limit for *E. coli* is expressed as a geometric mean. *E. coli* monitoring shall be conducted concurrently with a total residual chlorine sample.

7. Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). Report "no discharge Code 9" on DMRs for months where no chlorine is used. The limitations are in effect year-round. *E. coli* monitoring shall be conducted concurrently with a total residual chlorine sample when the permittee is chlorinating.

   UV disinfection, chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the disinfection system that may have resulted in inadequate disinfection in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the disinfection system was not operating properly.

8. The minimum levels (ML) for total copper and total lead using Inductively Coupled Plasma - Mass Spectrometry (EPA Method 200.8), are 0.5 ug/l. This method or other EPA-approved method (see 40 CFR Part 136) with an equivalent or lower ML shall be used for total copper and/or total lead analysis.

9. The permittee shall conduct chronic and acute (Attachments A and B) toxicity tests *four* times per year. The permittee shall test the daphnid, Ceriodaphnia dubia, only. Toxicity test samples shall be collected during the second week of the months specified in the following table and reported as specified in the table. The tests must be performed in accordance with test procedures and protocols specified in **Attachments, A and B** of this permit.

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
March **June** **September** **December**	**April 30** **July 31** **October 31** **January 31**	Ceriodaphnia dubia (daphnid)	≥ 100%	≥ 7.7%

   After submitting **one year** and a **minimum** of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements. The permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

10. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

11. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction, based on a statistically significant difference from dilution control, at a specific time of observation as determined from hypothesis testing. As described in the EPA WET Method Manual EPA 821-R-02-013, Section 10.2.6.2, all test results are to be reviewed and reported in accordance with EPA guidance on the evaluation of the concentration-response relationship. The 7.7 % or greater" limit is defined as a sample which is composed of 7.7 % (or greater) effluent, the remainder being dilution water.

12. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A** or **B (Toxicity Test Procedure and Protocol**) **Section IV., DILUTION WATER** in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance, which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region I web site at http://www.epa.gov/Region1/enforcementandassistance/dmr.html. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A or B**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A or B**.

13. For each whole effluent toxicity (WET) test the permittee shall report on the appropriate discharge monitoring report, (DMR), the concentrations of the hardness, ammonia nitrogen as nitrogen, total recoverable aluminum, cadmium, copper, lead, nickel, and zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the minimum quantification level shown in **Attachments A and B**. unless lower quantification levels are specified in the permit (see lead and copper). Also the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report. Effluent metals samples collected as part of the WET protocols may also be used as compliance samples for the same months they are collected.

14. See interim limits and conditions in **Section F – Compliance Schedules**.

Part I.A.1. (Continued)

a. The discharge shall not cause a violation of the water quality standards of the receiving waters.

b. The pH of the effluent shall not be less than 6.5 or greater than 8.3 at any time.

c. The discharge shall not cause objectionable discoloration of the receiving waters.

d. The effluent shall not contain a visible oil sheen, foam, or floating solids at any time.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.

h. The results of sampling for any parameter done in accordance with EPA approved methods above its required frequency must also be reported.

i. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.

2. All POTWs must provide adequate notice to the Director of the following:

a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice shall include information on:

(1) The quantity and quality of effluent introduced into the POTW; and

(2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through:

a. Pollutants introduced into POTW's by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

4. Toxics Control

   a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

   b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants

   EPA or MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. UNAUTHORIZED DISCHARGES

This permit authorizes discharges only from the outfall(s) listed in Part I.A.1, (list any others if applicable, e.g., CSOs) in accordance with the terms and conditions of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs), are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e.(1) of the General Requirements of this permit (Twenty-four hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes MassDEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at at http://www.mass.gov/eea/agencies/massdep/service/approvals/sanitary-sewer-overflow-bypass-backup-notification.html**.**

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions. The permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

   The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. Provisions to meet this requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

2. Preventive Maintenance Program

The permittee shall maintain an ongoing preventive maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges. Plans and programs to meet this requirement shall be described in the Collection System O & M Plan required pursuant to Section C.5. Below.

3. Infiltration/Inflow

The permittee shall control infiltration and inflow (I/I) into the sewer system as necessary to prevent high flow related unauthorized discharges from their collection systems and high flow related violations of the wastewater treatment plant's effluent limitations. Plans and programs to control I/I shall be described in the Collection System O & M Plan required pursuant to Section C.5. below.

4. Collection System Mapping

Within 30 months of the effective date of this permit, the permittee shall prepare a map of the sewer collection system it owns (see page 1 of this permit for the effective date). The map shall be on a street map of the community, with sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up to date and available for review by federal, state, or local agencies. Such map(s) shall include, but not be limited to the following:

a. All sanitary sewer lines and related manholes;
b. All combined sewer lines, related manholes, and catch basins;
c. All combined sewer regulators and any known or suspected connections between the sanitary sewer and storm drain systems (e.g. combination manholes);
d. All outfalls, including the treatment plant outfall(s), CSOs, and any known or suspected SSOs, including stormwater outfalls that are connected to combination manholes;
e. All pump stations and force mains;
f. The wastewater treatment facility(ies);
g. All surface waters (labeled);
h. Other major appurtenances such as inverted siphons and air release valves;
i. A numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;
j. The scale and a north arrow; and
k. The pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow.

5. Collection System Operation and Maintenance Plan

The permittee shall develop and implement a Collection System Operation and Maintenance Plan.

a. **Within six (6) months of the effective date of the permit**, the permittee shall submit to EPA and MassDEP

(1) A description of the collection system management goals, staffing, information management, and legal authorities;
(2) A description of the collection system and the overall condition of the collection system including a list of all pump stations and a description of recent studies and construction activities; and
(3) A schedule for the development and implementation of the full Collection System O & M Plan including the elements in paragraphs b.1. through b.8. below.

b. The full Collection System O & M Plan shall be completed, implemented and submitted to EPA and MassDEP **within twenty-four (24) months from the effective date of this permit**. The Plan shall include:

(1) The required submittal from paragraph 5.a. above, updated to reflect current information;
(2) A preventive maintenance and monitoring program for the collection system;
(3) Description of sufficient staffing necessary to properly operate and maintain the sanitary sewer collection system and how the operation and maintenance program is staffed;
(4) Description of funding, the source(s) of funding and provisions for funding sufficient for implementing the plan;
(5) Identification of known and suspected overflows and back-ups, including manholes. A description of the cause of the identified overflows and back-ups, corrective actions taken, and a plan for addressing the overflows and back-ups consistent with the requirements of this permit;
(6) A description of the permittee's programs for preventing I/I related effluent violations and all unauthorized discharges of wastewater, including overflows and by-passes and the ongoing program to identify and remove sources of I/I. The program shall include an inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts; and
(7) An educational public outreach program for all aspects of I/I control, particularly private inflow.
(8) An Overflow Emergency Response Plan to protect public health from overflows and unanticipated bypasses or upsets that exceed any effluent limitation in the permit.

6. Annual Reporting Requirement

The permittee shall submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. The report shall be submitted to EPA and MassDEP annually **by March 31**. The summary report shall, at a minimum, include:

a. A description of the staffing levels maintained during the year;
b. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year;
c. Expenditures for any collection system maintenance activities and corrective actions taken during the previous year;
d. A map with areas identified for investigation/action in the coming year;
e. If treatment plant flow has reached 80% of its design flow (1.43 mgd) based on the annual average flow during the reporting year, or there have been capacity related overflows, submit a calculation of the maximum daily, weekly, and monthly infiltration and the maximum daily, weekly, and monthly inflow for the reporting year; and
f. A summary of unauthorized discharges during the past year and their causes and a report of any corrective actions taken as a result of the unauthorized discharges reported pursuant to the Unauthorized Discharges section of this permit.

7. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee shall provide an alternative power source(s) sufficient to operate the portion of the publicly owned treatment works[1] it owns and operates.

D. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to Section 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state and federal requirements apply to the permittee's sludge use and/or disposal practices, the permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge use or disposal practices.

a. Land application - the use of sewage sludge to condition or fertilize the soil

[1] As defined at 40 CFR §122.2, which references the definition at 40 CFR §403.3

b. Surface disposal - the placement of sewage sludge in a sludge only landfill

c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR §503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g. lagoons, reed beds), or are otherwise excluded under 40 CFR § 503.6.

5. The 40 CFR. Part 503 requirements including the following elements:

- General requirements
- Pollutant limitations
- Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
- Management practices
- Record keeping
- Monitoring
- Reporting

Which of the 40 C.F.R. Part 503 requirements apply to the permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the permittee to assist it in determining the applicable requirements.[2]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen reduction and vector attraction reduction (land application and surface disposal) at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year

less than 290	1/ year
290 to less than 1,500	1 /quarter
1,500 to less than 15,000	6 /year
15,000 +	1 /month

Sampling of the sewage sludge shall use the procedures detailed in 40 CFR 503.8.

2 This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

7. Under 40 CFR § 503.9(r), the permittee is a "person who prepares sewage sludge" because it "is … the person who generates sewage sludge during the treatment of domestic sewage in a treatment works …." If the permittee contracts with *another* "person who prepares sewage sludge" under 40 CFR § 503.9(r) – i.e., with "a person who derives a material from sewage sludge" – for use or disposal of the sludge, then compliance with Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the permittee does not engage a "person who prepares sewage sludge," as defined in 40 CFR § 503.9(r), for use or disposal, then the permittee remains responsible to ensure that the applicable requirements in Part 503 are met. 40 CFR § 503.7. If the ultimate use or disposal method is land application, the permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

a. Name and address of contractor(s) responsible for sludge preparation, use or disposal

b. Quantity of sludge (in dry metric tons) from the POTW that is transferred to the sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge.

E. INDUSTRIAL USERS AND PRETREATMENT PROGRAM

1. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW Treatment Plant's Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. **Within 120 days of the effective date of this permit**, the permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. As part of this evaluation, the permittee shall assess how the POTW performs with respect to influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the permittee shall complete and submit the attached form (Attachment C) with the technical evaluation to assist in determining whether existing local limits need to be revised. Justifications and conclusions should be based on actual plant data if available and should be included in the report.

2. Should the evaluation reveal the need to revise local limits, the permittee shall complete the revisions within 120 days of notification by EPA and submit the revisions to EPA for approval. The Permittee shall carry out the local limits revisions in accordance with EPA's Local Limit Development Guidance (July 2004).

3. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

    a. Carry out inspection, surveillance, and monitoring procedures which will determine independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

    b. Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

    c. Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

    d. Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

4. The permittee shall provide the EPA and MassDEP with an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 403.12(i). The annual report shall be consistent with the format described in Attachment D of this permit and shall be submitted **no later than November 30 of each year**.

5. The permittee must obtain approval from EPA prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR 403.18(c).

6. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR 405 et. seq.

7. The permittee must modify its pretreatment program, if necessary, to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program.

8. The permittee must provide EPA, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission the following areas: (1) Enforcement response plan; (2) revised sewer use ordinances; and (3) slug control evaluations. The permittee will implement these proposed changes pending EPA Region I's approval under 40 CFR 403.18. This submission is separate and distinct from any local limits analysis submission described in Part I.E.1.

F. COMPLIANCE SCHEDULES

The permittee shall submit an annual report no later than December 31 of each year to both EPA and MassDEP detailing steps taken to insure compliance with water quality based effluent limitations for total aluminum, total copper, total lead and total phosphorus.

The permittee must comply with the following interim limits for total aluminum, total copper, and total lead for the duration of the compliance schedule.

PARAMETER	AVERAGE MONTHLY	MAXIMUM DAILY
Total Recoverable Copper	10 ug/l	Report ug/l
Total Recoverable Lead	2.0 ug/l	Report ug/l
Total Recoverable Aluminum	1.3 mg/l	Report mg/l

The permittee shall take the following actions by the dates date stated herein:

1. Within thirty days of the effective date of this permit: Quantify Influent/septage loadings at the WWTF for P, Al, Cu and Pb;

2. within thirty days of the effective date of this permit: Report of the start of system wide corrosion control at Water Treatment Plants;

3. June 1, 2015: Identify source loadings from industry/commercial and domestic users for P, Al, Cu and Pb;

4. December 31, 2015: Fully optimize corrosion control;

5. December 31, 2015: Assist and evaluate SIUs chemical substitutions for source reduction;

6. December 31, 2016: Submit an evaluation of the use of alternative chemicals to control P;

7. December 31, 2016: Optimize the WWTF process for P removal and submit report of findings;

8. June 1, 2017: Identify and evaluate alternative treatment technologies to achieve compliance with the Permit;

9. December 2017: Submit an Engineering Report that recommends specific interim and long-term measures to achieve compliance with the Permit;

10. December 31, 2018: Submit a Design/permitting and funding proposal for the interim and long-term measures;

11. July 2019: Begin Construction;

12. December 31, 2019: Submit progress report; and;

13. September 1, 2020: Achieve compliance with final effluent limits for total aluminum, total copper and total lead.

G. MONITORING AND REPORTING

The permittee shall submit monitoring data and all other NPDES permit required reports to EPA electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

1. Submittal of Reports Using NetDMR

   NetDMR is accessed from: http://www.epa.gov/netdmr. DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. A permittee submitting reports using NetDMR is no longer required to submit hard copies of DMRs or other reports to EPA and no longer required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports, Toxicity Test Results and Nutrient Optimization Reports) to MassDEP until further notice from MassDEP.

2. Submittal of Reports in Hard Copy Form

   While we do not anticipate the need for the permittee to submit hard copies of reports to EPA, any hard copies that are submitted to EPA shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (OES04-SMR)
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following address:

MassDEP – Central Region
Bureau of Resource Protection
8 New Bond Street
Worcester, Massachusetts 01606

Toxicity test reports only shall also be submitted to the State at the following address:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, Massachusetts 01606

Any verbal reports, if required in **Parts I** and/or **II** of this permit, shall be made to both EPA-New England and to MassDEP.

H. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 C.M.R. 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

NPDES PART II STANDARD CONDITIONS
(January, 2007)

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PART II. A. GENERAL REQUIREMENTS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

a. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirements.

b. The CWA provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA or any permit condition or limitation implementing any of such sections in a permit issued under Section 402, or any requirement imposed in a pretreatment program approved under Section 402 (a)(3) or 402 (b)(8) of the CWA is subject to a civil penalty not to exceed $25,000 per day for each violation. Any person who negligently violates such requirements is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both. Any person who knowingly violates such requirements is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. Any person may be assessed an administrative penalty by the Administrator for violating Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

Note: See 40 CFR §122.41(a)(2) for complete “Duty to Comply” regulations.

2. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or notifications of planned changes or anticipated noncompliance does not stay any permit condition.

3. Duty to Provide Information

The permittee shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

4. Reopener Clause

The Regional Administrator reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the CWA in order to bring all discharges into compliance with the CWA.

For any permit issued to a treatment works treating domestic sewage (including "sludge-only facilities"), the Regional Administrator or Director shall include a reopener clause to incorporate any applicable standard for sewage sludge use or disposal promulgated under Section 405 (d) of the CWA. The Regional Administrator or Director may promptly modify or revoke and reissue any permit containing the reopener clause required by this paragraph if the standard for sewage sludge use or disposal is more stringent than any requirements for sludge use or disposal in the permit, or contains a pollutant or practice not limited in the permit.

Federal regulations pertaining to permit modification, revocation and reissuance, and termination are found at 40 CFR §122.62, 122.63, 122.64, and 124.5.

5. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from responsibilities, liabilities or penalties to which the permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

6. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges.

7. Confidentiality of Information

a. In accordance with 40 CFR Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee;
(2) Permit applications, permits, and effluent data as defined in 40 CFR §2.302(a)(2).

c. Information required by NPDES application forms provided by the Regional Administrator under 40 CFR §122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

8. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee must apply for and obtain a new permit. The permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Regional Administrator. (The Regional Administrator shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

9. State Authorities

Nothing in Part 122, 123, or 124 precludes more stringent State regulation of any activity covered by these regulations, whether or not under an approved State program.

10. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, nor does it relieve the permittee of its obligation to comply with any other applicable Federal, State, or local laws and regulations.

PART II. B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Need to Halt or Reduce Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *Severe property damage* means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can be reasonably expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Bypass not exceeding limitations

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of Paragraphs B.4.c. and 4.d. of this section.

c. Notice

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (Twenty-four hour reporting).

d. Prohibition of bypass

Bypass is prohibited, and the Regional Administrator may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(3) i) The permittee submitted notices as required under Paragraph 4.c. of this section.
ii) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph 4.d. of this section.

5. Upset

a. Definition. *Upset* means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph B.5.c. of this section are met. No determination made during

administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in paragraphs D.1.a. and 1.e. (Twenty-four hour notice); and
(4) The permittee complied with any remedial measures required under B.3. above.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART II. C. MONITORING REQUIREMENTS

1. Monitoring and Records

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

b. Except for records for monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application except for the information concerning storm water discharges which must be retained for a total of 6 years. This retention period may be extended by request of the Regional Administrator at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the permit.

e. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by

imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The permittee shall allow the Regional Administrator or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

PART II. D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. Planned Changes. The permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR§122.29(b); or
(2) The alteration or addition could significantly change the nature or increase the quantities of the pollutants discharged. This notification applies to pollutants which are subject neither to the effluent limitations in the permit, nor to the notification requirements at 40 CFR§122.42(a)(1).
(3) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition or change may justify the application of permit conditions different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

b. Anticipated noncompliance. The permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

c. Transfers. This permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the permit to change the name of the permittee and

incorporate such other requirements as may be necessary under the CWA. (See 40 CFR Part 122.61; in some cases, modification or revocation and reissuance is mandatory.)

d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

(2) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the permit, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. Twenty-four hour reporting.

(1) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances.

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(2) The following shall be included as information which must be reported within 24 hours under this paragraph.

(a) Any unanticipated bypass which exceeds any effluent limitation in the permit. (See 40 CFR §122.41(g).)
(b) Any upset which exceeds any effluent limitation in the permit.
(c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the permit to be reported within 24 hours. (See 40 CFR §122.44(g).)

(3) The Regional Administrator may waive the written report on a case-by-case basis for reports under Paragraph D.1.e. if the oral report has been received within 24 hours.

f. Compliance Schedules. Reports of compliance or noncompliance with, any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

g. Other noncompliance. The permittee shall report all instances of noncompliance not reported under Paragraphs D.1.d., D.1.e., and D.1.f. of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in Paragraph D.1.e. of this section.

h. Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, it shall promptly submit such facts or information.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR §122.22)

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 2 years per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under Paragraph A.8. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

PART II. E. DEFINITIONS AND ABBREVIATIONS

1. Definitions for Individual NPDES Permits including Storm Water Requirements

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and Federal standards and limitations to which a “discharge”, a “sewage sludge use or disposal practice”, or a related activity is subject to, including “effluent limitations”, water quality standards, standards of performance, toxic effluent standards or prohibitions, “best management practices”, pretreatment standards, and “standards for sewage sludge use and disposal” under Sections 301, 302, 303, 304, 306, 307, 308, 403, and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in "approved States", including any approved modifications or revisions.

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For total and/or fecal coliforms and Escherichia coli, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of "daily discharges" over a calendar month calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" measured during the calendar week divided by the number of "daily discharges" measured during the week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Professional Judgment (BPJ) means a case-by-case determination of Best Practicable Treatment (BPT), Best Available Treatment (BAT), or other appropriate technology-based standard based on an evaluation of the available technology to achieve a particular pollutant reduction and other factors set forth in 40 CFR §125.3 (d).

Coal Pile Runoff means the rainfall runoff from or through any coal storage pile.

Composite Sample means a sample consisting of a minimum of eight grab samples of equal volume collected at equal intervals during a 24-hour period (or lesser period as specified in the section on Monitoring and Reporting) and combined proportional to flow, or a sample consisting of the same number of grab samples, or greater, collected proportionally to flow over that same time period.

Construction Activities - The following definitions apply to construction activities:

(a) Commencement of Construction is the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

(b) Dedicated portable asphalt plant is a portable asphalt plant located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR Part 443.

(c) Dedicated portable concrete plant is a portable concrete plant located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

(d) Final Stabilization means that all soil disturbing activities at the site have been complete, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

(e) Runoff coefficient means the fraction of total rainfall that will appear at the conveyance as runoff.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility except for infrequent shutdowns for maintenance, process changes, or similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, and Pub. L. 97-117; 33 USC §§1251 et seq.

Daily Discharge means the discharge of a pollutant measured during the calendar day or any other 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Director normally means the person authorized to sign NPDES permits by EPA or the State or an authorized representative. Conversely, it also could mean the Regional Administrator or the State Director as the context requires.

Discharge Monitoring Report Form (DMR) means the EPA standard national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by "approved States" as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source", or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation (See "Point Source" definition).

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead

to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Regional Administrator on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States", the waters of the "contiguous zone", or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under Section 304(b) of CWA to adopt or revise "effluent limitations".

EPA means the United States "Environmental Protection Agency".

Flow-weighted composite sample means a composite sample consisting of a mixture of aliquots where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab Sample – An individual sample collected in a period of less than 15 minutes.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the CWA.

Indirect Discharger means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

Interference means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act (CWA), the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Large and Medium municipal separate storm sewer system means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and 40 CFR Part 122); or (ii) located in the counties with unincorporated urbanized

populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or (iii) owned or operated by a municipality other than those described in Paragraph (i) or (ii) and that are designated by the Regional Administrator as part of the large or medium municipal separate storm sewer system.

Maximum daily discharge limitation means the highest allowable "daily discharge" concentration that occurs only during a normal day (24-hour duration).

Maximum daily discharge limitation (as defined for the Steam Electric Power Plants only) when applied to Total Residual Chlorine (TRC) or Total Residual Oxidant (TRO) is defined as "maximum concentration" or "Instantaneous Maximum Concentration" during the two hours of a chlorination cycle (or fraction thereof) prescribed in the Steam Electric Guidelines, 40 CFR Part 423. These three synonymous terms all mean "a value that shall not be exceeded" during the two-hour chlorination cycle. This interpretation differs from the specified NPDES Permit requirement, 40 CFR § 122.2, where the two terms of "Maximum Daily Discharge" and "Average Daily Discharge" concentrations are specifically limited to the daily (24-hour duration) values.

Municipality means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribe organization, or a designated and approved management agency under Section 208 of the CWA.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program".

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants";

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source"; and

(d) Which has never received a finally effective NPDES permit for discharges at that "site".

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore rig or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR §§125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants", the construction of which commenced:

(a) After promulgation of standards of performance under Section 306 of CWA which are applicable to such source, or

(b) After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NPDES means "National Pollutant Discharge Elimination System".

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved" State.

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to any pipe ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 CFR §122.2).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. §§2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (Natural Resources Defense Council et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D. D.C. 1979)); also listed in Appendix A of 40 CFR Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operation is not the operator of the treatment works or (b) not a "POTW".

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly Owned Treatment Works (POTW) means any facility or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality".

This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary Industry Category means any industry which is not a "primary industry category".

Section 313 water priority chemical means a chemical or chemical category which:

(1) is listed at 40 CFR §372.65 pursuant to Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986);

(2) is present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and

(3) satisfies at least one of the following criteria:

(i) are listed in Appendix D of 40 CFR Part 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols), or Table V (certain toxic pollutants and hazardous substances);
(ii) are listed as a hazardous substance pursuant to Section 311(b)(2)(A) of the CWA at 40 CFR §116.4; or
(iii) are pollutants for which EPA has published acute or chronic water quality criteria.

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum, septage, portable toilet pumpings, Type III Marine Sanitation Device pumpings (33 CFR Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials, fuels, materials such as solvents, detergents, and plastic pellets, raw materials used in food processing or production, hazardous substance designated under section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides, and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 CFR §110.10 and §117.21) or Section 102 of CERCLA (see 40 CFR § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to Section 405(d) of the CWA, and is required to obtain a permit under 40 CFR §122.1(b)(3).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands.

Storm Water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. (See 40 CFR §122.26 (b)(14) for specifics of this definition.

Time-weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.

Toxic pollutants means any pollutant listed as toxic under Section 307 (a)(1) or, in the case of "sludge use or disposal practices" any pollutant identified in regulations implementing Section 405(d) of the CWA.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or wastewater treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and wastewater from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal in 40 CFR Part 503 as a "treatment works treating domestic sewage", where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 CFR Part 503.

Waste Pile means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in Paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in Paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole Effluent Toxicity (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test. (See Abbreviations Section, following, for additional information.)

2. Definitions for NPDES Permit Sludge Use and Disposal Requirements.

Active sewage sludge unit is a sewage sludge unit that has not closed.

Aerobic Digestion is the biochemical decomposition of organic matter in sewage sludge into carbon dioxide and water by microorganisms in the presence of air.

Agricultural Land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

Agronomic rate is the whole sludge application rate (dry weight basis) designed:

(1) To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and

(2) To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.

Air pollution control device is one or more processes used to treat the exit gas from a sewage sludge incinerator stack.

Anaerobic digestion is the biochemical decomposition of organic matter in sewage sludge into methane gas and carbon dioxide by microorganisms in the absence of air.

Annual pollutant loading rate is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

Annual whole sludge application rate is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period.

Apply sewage sludge or sewage sludge applied to the land means land application of sewage sludge.

Aquifer is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

Auxiliary fuel is fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of the sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel.

Base flood is a flood that has a one percent chance of occurring in any given year (i.e. a flood with a magnitude equaled once in 100 years).

Bulk sewage sludge is sewage sludge that is not sold or given away in a bag or other container for application to the land.

Contaminate an aquifer means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR §141.11 to be exceeded in ground water or that causes the existing concentration of nitrate in the ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR §141.11.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 CFR §501.2, required to have an approved pretreatment program under 40 CFR §403.8 (a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR §403.10 (e) and any treatment works treating domestic sewage, as defined in 40 CFR § 122.2,

classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the State Director, because of the potential for sewage sludge use or disposal practice to affect public health and the environment adversely.

Control efficiency is the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator.

Cover is soil or other material used to cover sewage sludge placed on an active sewage sludge unit.

Cover crop is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

Cumulative pollutant loading rate is the maximum amount of inorganic pollutant that can be applied to an area of land.

Density of microorganisms is the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge.

Dispersion factor is the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack.

Displacement is the relative movement of any two sides of a fault measured in any direction.

Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

Domestic sewage is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

Dry weight basis means calculated on the basis of having been dried at 105 degrees Celsius (°C) until reaching a constant mass (i.e. essentially 100 percent solids content).

Fault is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to the strata on the other side.

Feed crops are crops produced primarily for consumption by animals.

Fiber crops are crops such as flax and cotton.

Final cover is the last layer of soil or other material placed on a sewage sludge unit at closure.

Fluidized bed incinerator is an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas.

Food crops are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

Forest is a tract of land thick with trees and underbrush.

Ground water is water below the land surface in the saturated zone.

Holocene time is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

Hourly average is the arithmetic mean of all the measurements taken during an hour. At least two measurements must be taken during the hour.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Industrial wastewater is wastewater generated in a commercial or industrial process.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land with a high potential for public exposure is land that the public uses frequently. This includes, but is not limited to, a public contact site and reclamation site located in a populated area (e.g., a construction site located in a city).

Land with low potential for public exposure is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

Leachate collection system is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit.

Liner is soil or synthetic material that has a hydraulic conductivity of 1×10^{-7} centimeters per second or less.

Lower explosive limit for methane gas is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

Monthly average (Incineration) is the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month.

Monthly average (Land Application) is the arithmetic mean of all measurements taken during the month.

Municipality means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

Other container is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

Pasture is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permitting authority is either EPA or a State with an EPA-approved sludge management program.

Person is an individual, association, partnership, corporation, municipality, State or Federal Agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration; a measure of the acidity or alkalinity of a liquid or solid material.

Place sewage sludge or sewage sludge placed means disposal of sewage sludge on a surface disposal site.

Pollutant (as defined in sludge disposal requirements) is an organic substance, an inorganic substance, a combination or organic and inorganic substances, or pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could on the basis on information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction) or physical deformations in either organisms or offspring of the organisms.

Pollutant limit (for sludge disposal requirements) is a numerical value that describes the amount of a pollutant allowed per unit amount of sewage sludge (e.g., milligrams per kilogram of total solids); the amount of pollutant that can be applied to a unit of land (e.g., kilograms per hectare); or the volume of the material that can be applied to the land (e.g., gallons per acre).

Public contact site is a land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

Qualified ground water scientist is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

Range land is open land with indigenous vegetation.

Reclamation site is drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites.

Risk specific concentration is the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of a site where the sewage sludge incinerator is located.

Runoff is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off the land surface.

Seismic impact zone is an area that has 10 percent or greater probability that the horizontal ground level acceleration to the rock in the area exceeds 0.10 gravity once in 250 years.

Sewage sludge is a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to:, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in treatment works.

Sewage sludge feed rate is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR §122.2.

Sewage sludge unit boundary is the outermost perimeter of an active sewage sludge unit.

Specific oxygen uptake rate (SOUR) is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in sewage sludge.

Stack height is the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 meters. When the difference is greater than 65 meters, stack height is the creditable stack height determined in accordance with 40 CFR §51.100 (ii).

State is one of the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, and an Indian tribe eligible for treatment as a State pursuant to regulations promulgated under the authority of section 518(e) of the CWA.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Total hydrocarbons means the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane.

Total solids are the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 degrees Celsius.

Treat or treatment of sewage sludge is the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge.

Treatment works is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature.

Unstable area is land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Unstabilized solids are organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Volatile solids is the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 degrees Celsius in the presence of excess air.

Wet electrostatic precipitator is an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

Wet scrubber is an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack.

3. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)

TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont. (Continuous)	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen
kg/day	Kilograms per day
lbs/day	Pounds per day
mg/l	Milligram(s) per liter
ml/l	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
pH	A measure of the hydrogen ion concentration. A measure of the acidity or alkalinity of a liquid or material
Surfactant	Surface-active agent

Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
ug/l	Microgram(s) per liter
WET	"Whole effluent toxicity" is the total effect of an effluent measured directly with a toxicity test.
C-NOEC	"Chronic (Long-term Exposure Test) – No Observed Effect Concentration". The highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.
A-NOEC	"Acute (Short-term Exposure Test) – No Observed Effect Concentration" (see C-NOEC definition).
LC_{50}	LC_{50} is the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.
ZID	Zone of Initial Dilution means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports.

Permit Attachment A
FRESHWATER CHRONIC
TOXICITY TEST PROCEDURE AND PROTOCOL
USEPA Region 1

I. GENERAL REQUIREMENTS

The permittee shall be responsible for the conduct of acceptable chronic toxicity tests using three fresh samples collected during each test period. The following tests shall be performed as prescribed in Part 1 of the NPDES discharge permit in accordance with the appropriate test protocols described below. (Note: the permittee and testing laboratory should review the applicable permit to determine whether testing of one or both species is required).

- **Daphnid (Ceriodaphnia dubia) Survival and Reproduction Test.**
- **Fathead Minnow (Pimephales promelas) Larval Growth and Survival Test.**

Chronic toxicity data shall be reported as outlined in Section VIII.

II. METHODS

Methods to follow are those recommended by EPA in: Short Term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition. October 2002. United States Environmental Protection Agency. Office of Water, Washington, D.C., EPA 821-R-02-013. The methods are available on-line at http://www.epa.gov/waterscience/WET/ . Exceptions and clarification are stated herein.

III. SAMPLE COLLECTION AND USE

A total of three fresh samples of effluent and receiving water are required for initiation and subsequent renewals of a freshwater, chronic, toxicity test. The receiving water control sample must be collected immediately upstream of the permitted discharge's zone of influence. Fresh samples are recommended for use on test days 1, 3, and 5. However, provided a total of three samples are used for testing over the test period, an alternate sampling schedule is acceptable. The acceptable holding times until initial use of a sample are 24 and 36 hours for on-site and off-site testing, respectively. A written waiver is required from the regulating authority for any hold time extension. All test samples collected may be used for 24, 48 and 72 hour renewals after initial use. All samples held for use beyond the day of sampling shall be refrigerated and maintained at a temperature range of 0-6^{o} C.

All samples submitted for chemical and physical analyses will be analyzed according to Section VI of this protocol.

Sampling guidance dictates that, where appropriate, aliquots for the analysis required in this protocol shall be split from the samples, containerized and immediately preserved, or analyzed as per 40 CFR Part 136. EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection. Testing for the presence of total residual chlorine (TRC) must be analyzed immediately or as soon as possible, for all effluent samples, prior to WET testing. TRC analysis may be performed on-site or by the toxicity testing laboratory and the samples must be dechlorinated, as necessary, using sodium thiosulfate prior to sample use for toxicity testing.

If any of the renewal samples are of sufficient potency to cause lethality to 50 percent or more of the test organisms in any of the test treatments for either species or, if the test fails to meet its permit limits, then chemical analysis for total metals (originally required for the initial sample only in Section VI) will be required on the renewal sample(s) as well.

IV. DILUTION WATER

Samples of receiving water must be collected from a location in the receiving water body immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. EPA strongly urges that screening for toxicity be performed prior to the set up of a full, definitive toxicity test any time there is a question about the test dilution water's ability to achieve test acceptability criteria (TAC) as indicated in Section V of this protocol. The test dilution water control response will be used in the statistical analysis of the toxicity test data. All other control(s) required to be run in the test will be reported as specified in the Discharge Monitoring Report (DMR) Instructions, Attachment F, page 2,Test Results & Permit Limits.

The test dilution water must be used to determine whether the test met the applicable TAC. When receiving water is used for test dilution, an additional control made up of standard laboratory water (0% effluent) is required. This control will be used to verify the health of the test organisms and evaluate to what extent, if any, the receiving water itself is responsible for any toxic response observed.

If dechlorination of a sample by the toxicity testing laboratory is necessary a "sodium thiosulfate" control, representing the concentration of sodium thiosulfate used to adequately dechlorinate the sample prior to toxicity testing, must be included in the test.

If the use of an alternate dilution water (ADW) is authorized, in addition to the ADW test control, the testing laboratory must, for the purpose of monitoring the receiving water, also run a receiving water control.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable an ADW of known quality with hardness similar to that of the receiving water may be substituted. Substitution is species specific meaning that the decision to use ADW is made for each species and is based on the toxic response of that particular species. Substitution to an ADW is authorized in two cases. The first is the case where repeating a test due to toxicity in the site dilution water requires an **immediate decision** for ADW use be made by the permittee and toxicity testing laboratory. The second is in the case where two of the most recent documented incidents of unacceptable site dilution water toxicity requires ADW use in future WET testing.

For the second case, written notification from the permittee requesting ADW use **and** written authorization from the permit issuing agency(s) is required **prior to** switching to a long-term use of ADW for the duration of the permit.

Written requests for use of ADW must be mailed with supporting documentation to the following addresses:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
One Congress St., Suite 1100
Boston, MA 02114-2023

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
One Congress Street, Suite 1100
Boston, MA 02114-2023

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

V. TEST CONDITIONS AND TEST ACCEPTABILITY CRITERIA

Method specific test conditions and TAC are to be followed and adhered to as specified in the method guidance document, EPA 821-R-02-013. If a test does not meet TAC the test must be repeated with fresh samples within 30 days of the initial test completion date.

V.1. Use of Reference Toxicity Testing

Reference toxicity test results and applicable control charts must be included in the toxicity testing report.

If reference toxicity test results fall outside the control limits established by the laboratory for a specific test endpoint, a reason or reasons for this excursion must be evaluated, correction made and reference toxicity tests rerun as necessary.

If a test endpoint value exceeds the control limits at a frequency of more than one out of twenty then causes for the reference toxicity test failure must be examined and if problems are identified corrective action taken. The reference toxicity test must be repeated during the same month in which the exceedance occurred.

If two consecutive reference toxicity tests fall outside control limits, the possible cause(s) for the exceedance must be examined, corrective actions taken and a repeat of the reference toxicity test must take place immediately. Actions taken to resolve the problem must be reported.

V.1.a. Use of Concurrent Reference Toxicity Testing

In the case where concurrent reference toxicity testing is required due to a low frequency of testing with a particular method, if the reference toxicity test results fall slightly outside of laboratory established control limits, but the primary test met the TAC, the results of the primary test will be considered acceptable. However, if the results of the concurrent test fall well outside the established **upper** control limits i.e. ≥3 standard deviations for IC25 values and ≥ two concentration intervals for NOECs, and even though the primary test meets TAC, the primary test will be considered unacceptable and must be repeated.

V.2. For the *C. dubia* test, the determination of TAC and formal statistical analyses must be performed using only the first three broods produced.

V.3. Test treatments must include 5 effluent concentrations and a dilution water control. An additional test treatment, at the permitted effluent concentration (% effluent), is required if it is not included in the dilution series.

VI. CHEMICAL ANALYSIS

As part of each toxicity test's daily renewal procedure, pH, specific conductance, dissolved oxygen (DO) and temperature must be measured at the beginning and end of each 24-hour period in each test treatment and the control(s).

The additional analysis that must be performed under this protocol is as specified and noted in the table below.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1, 4]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3, 4]	x		0.02
Alkalinity[4]	x	x	2.0
pH[4]	x	x	--
Specific Conductance[4]	x	x	--
Total Solids[6]	x		--
Total Dissolved Solids[6]	x		--
Ammonia[4]	x	x	0.1
Total Organic Carbon[6]	x	x	0.5
Total Metals[5]			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 2340B (hardness by calculation)
  -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.

- APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
  -Method 4500-CL E Low Level Amperometric Titration
  -Method 4500-CL G DPD Colorimetric Method
- USEPA 1983. Manual of Methods Analysis of Water and Wastes
  -Method 330.5

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing
4. Analysis is to be performed on samples and/or receiving water, as designated in the table above, from all three sampling events.
5. Analysis is to be performed on the initial sample(s) only unless the situation arises as stated in Section III, paragraph 4
6. Analysis to be performed on initial samples only

VII. TOXICITY TEST DATA ANALYSIS AND REVIEW

A. Test Review

1. Concentration / Response Relationship

A concentration/response relationship evaluation is required for test endpoint determinations from both Hypothesis Testing and Point Estimate techniques. The test report is to include documentation of this evaluation in support of the endpoint values reported. The dose-response review must be performed as required in Section 10.2.6 of EPA-821-R-02-013. Guidance for this review can be found at http://water.epa.gov/scitech/methods/cwa/ . In most cases, the review will result in one of the following three conclusions: (1) Results are reliable and reportable; (2) Results are anomalous and require explanation; or (3) Results are inconclusive and a retest with fresh samples is required.

2. Test Variability (Test Sensitivity)

This review step is separate from the determination of whether a test meets or does not meet TAC. Within test variability is to be examined for the purpose of evaluating test sensitivity. This evaluation is to be performed for the sub-lethal hypothesis testing endpoints reproduction and growth as required by the permit. The test report is to include documentation of this evaluation to support that the endpoint values reported resulted from a toxicity test of adequate sensitivity. This evaluation must be performed as required in Section 10.2.8 of EPA-821-R-02-013.

To determine the adequacy of test sensitivity, USEPA requires the calculation of test percent minimum significant difference (PMSD) values. In cases where NOEC determinations are made based on a non-parametric technique, calculation of a test PMSD value**,** for the sole purpose of assessing test sensitivity, shall be calculated using a comparable parametric statistical analysis technique. The calculated test PMSD is then compared to the upper and lower PMSD bounds shown for freshwater tests in Section 10.2.8.3, p. 52, Table 6 of EPA-821-R-02-013. The comparison will yield one of the following determinations.

- The test PMSD exceeds the PMSD upper bound test variability criterion in Table 6, the test results are considered highly variable and the test may not be sensitive enough to determine the presence of toxicity at the permit limit concentration (PLC). If the test results indicate that the discharge is not toxic at the PLC, then the test is considered insufficiently sensitive and must be repeated within 30 days of the initial test completion using fresh samples. If the test results indicate that the discharge is toxic at the PLC, the test is considered acceptable and does not have to be repeated.

- The test PMSD falls below the PMSD lower bound test variability criterion in Table 6, the test is determined to be very sensitive. In order to determine which treatment(s) are statistically significant and which are not, for the purpose of reporting a NOEC, the relative percent difference (RPD) between the control and each treatment must be calculated and compared to the lower PMSD boundary. See *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program*, EPA 833-R-00-003, June 2002, Section 6.4.2. The following link: Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the NPDES Program can be used to locate the USEPA website containing this document. If the RPD for a treatment falls below the PMSD lower bound, the difference is considered statistically insignificant. If the RPD for a treatment is greater that the PMSD lower bound, then the treatment is considered statistically significant.

- The test PMSD falls within the PMSD upper and lower bounds in Table 6, the sub-lethal test endpoint values shall be reported as is.

B. Statistical Analysis

1. General - Recommended Statistical Analysis Method

Refer to general data analysis flowchart, EPA 821-R-02-013, page 43

For discussion on Hypothesis Testing, refer to EPA 821-R-02-013, Section 9.6

For discussion on Point Estimation Techniques, refer to EPA 821-R-02-013, Section 9.7

2. *Pimephales promelas*

Refer to survival hypothesis testing analysis flowchart, EPA 821-R-02-013, page 79

Refer to survival point estimate techniques flowchart, EPA 821-R-02-013, page 80

Refer to growth data statistical analysis flowchart, EPA 821-R-02-013, page 92

3. *Ceriodaphnia dubia*

Refer to survival data testing flowchart, EPA 821-R-02-013, page 168

Refer to reproduction data testing flowchart, EPA 821-R-02-013, page 173

VIII. TOXICITY TEST REPORTING

A report of results must include the following:

- Test summary sheets (2007 DMR Attachment F) which includes:
  - Facility name
  - NPDES permit number
  - Outfall number
  - Sample type
  - Sampling method
  - Effluent TRC concentration
  - Dilution water used
  - Receiving water name and sampling location
  - Test type and species
  - Test start date
  - Effluent concentrations tested (%) and permit limit concentration
  - Applicable reference toxicity test date and whether acceptable or not
  - Age, age range and source of test organisms used for testing
  - Results of TAC review for all applicable controls
  - Test sensitivity evaluation results (test PMSD for growth and reproduction)
  - Permit limit and toxicity test results
  - Summary of test sensitivity and concentration response evaluation

In addition to the summary sheets the report must include:

- A brief description of sample collection procedures
- Chain of custody documentation including names of individuals collecting samples, times and dates of sample collection, sample locations, requested analysis and lab receipt with time and date received, lab receipt personnel and condition of samples upon receipt at the lab(s)
- Reference toxicity test control charts
- All sample chemical/physical data generated, including minimum limits (MLs) and analytical methods used
- All toxicity test raw data including daily ambient test conditions, toxicity test chemistry, sample dechlorination details as necessary, bench sheets and statistical analysis
- A discussion of any deviations from test conditions
- Any further discussion of reported test results, statistical analysis and concentration-response relationship and test sensitivity review per species per endpoint

USEPA REGION 1 FRESHWATER ACUTE
TOXICITY TEST PROCEDURE AND PROTOCOL

I. GENERAL REQUIREMENTS

The permittee shall conduct acceptable acute toxicity tests in accordance with the appropriate test protocols described below:

- **Daphnid (Ceriodaphnia dubia) definitive 48 hour test.**

- **Fathead Minnow (Pimephales promelas) definitive 48 hour test.**

Acute toxicity test data shall be reported as outlined in Section VIII.

II. METHODS

The permittee shall use 40 CFR Part 136 methods. Methods and guidance may be found at:

http://water.epa.gov/scitech/swguidance/methods/wet/index.cfm#methods

The permittee shall also meet the sampling, analysis and reporting requirements included in this protocol. This protocol defines more specific requirements while still being consistent with the Part 136 methods. If, due to modifications of Part 136, there are conflicting requirements between the Part 136 method and this protocol, the permittee shall comply with the requirements of the Part 136 method.

III. SAMPLE COLLECTION

A discharge sample shall be collected. Aliquots shall be split from the sample, containerized and preserved (as per 40 CFR Part 136) for chemical and physical analyses required. The remaining sample shall be measured for total residual chlorine and dechlorinated (if detected) in the laboratory using sodium thiosulfate for subsequent toxicity testing. (Note that EPA approved test methods require that samples collected for metals analyses be preserved immediately after collection.) Grab samples must be used for pH, temperature, and total residual chlorine (as per 40 CFR Part 122.21).

Standard Methods for the Examination of Water and Wastewater describes dechlorination of samples (APHA, 1992). Dechlorination can be achieved using a ratio of 6.7 mg/L anhydrous sodium thiosulfate to reduce 1.0 mg/L chlorine. If dechlorination is necessary, a thiosulfate control (maximum amount of thiosulfate in lab control or receiving water) must also be run in the WET test.

All samples held overnight shall be refrigerated at 1- 6^{o}C.

IV. DILUTION WATER

A grab sample of dilution water used for acute toxicity testing shall be collected from the receiving water at a point immediately upstream of the permitted discharge's zone of influence at a reasonably accessible location. Avoid collection near areas of obvious road or agricultural runoff, storm sewers or other point source discharges and areas where stagnant conditions exist. In the case where an alternate dilution water has been agreed upon an additional receiving water control (0% effluent) must also be tested.

If the receiving water diluent is found to be, or suspected to be toxic or unreliable, an alternate standard dilution water of known quality with a hardness, pH, conductivity, alkalinity, organic carbon, and total suspended solids similar to that of the receiving water may be substituted **AFTER RECEIVING WRITTEN APPROVAL FROM THE PERMIT ISSUING AGENCY(S)**. Written requests for use of an alternate dilution water should be mailed with supporting documentation to the following address:

Director
Office of Ecosystem Protection (CAA)
U.S. Environmental Protection Agency-New England
5 Post Office Sq., Suite 100 (OEP06-5)
Boston, MA 02109-3912

and

Manager
Water Technical Unit (SEW)
U.S. Environmental Protection Agency
5 Post Office Sq., Suite 100 (OES04-4)
Boston, MA 02109-3912

Note: USEPA Region 1 retains the right to modify any part of the alternate dilution water policy stated in this protocol at any time. Any changes to this policy will be documented in the annual DMR posting.

See the most current annual DMR instructions which can be found on the EPA Region 1 website at http://www.epa.gov/region1/enforcementandassistance/dmr.html for further important details on alternate dilution water substitution requests.

It may prove beneficial to have the proposed dilution water source screened for suitability prior to toxicity testing. EPA strongly urges that screening be done prior to set up of a full definitive toxicity test any time there is question about the dilution water's ability to support acceptable performance as outlined in the 'test acceptability' section of the protocol.

V. TEST CONDITIONS

The following tables summarize the accepted daphnid and fathead minnow toxicity test conditions and test acceptability criteria:

EPA NEW ENGLAND EFFLUENT TOXICITY TEST CONDITIONS FOR THE DAPHNID, CERIODAPHNIA DUBIA 48 HOUR ACUTE TESTS[1]

1.	Test type	Static, non-renewal
2.	Temperature (^{o}C)	20 $\pm$ 1^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality	Ambient laboratory illumination
4.	Photoperiod	16 hour light, 8 hour dark
5.	Test chamber size	Minimum 30 ml
6.	Test solution volume	Minimum 15 ml
7.	Age of test organisms	1-24 hours (neonates)
8.	No. of daphnids per test chamber	5
9.	No. of replicate test chambers per treatment	4
10.	Total no. daphnids per test concentration	20
11.	Feeding regime	As per manual, lightly feed YCT and Selenastrum to newly released organisms while holding prior to initiating test
12.	Aeration	None
13.	Dilution water[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized water and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions[3]	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement of body or appendages on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples must first be used within 36 hours of collection.
19.	Sample volume required	Minimum 1 liter

Footnotes:

1. Adapted from EPA-821-R-02-012.
2. Standard prepared dilution water must have hardness requirements to generally reflect the characteristics of the receiving water.

EPA NEW ENGLAND TEST CONDITIONS FOR THE FATHEAD MINNOW (PIMEPHALES PROMELAS) 48 HOUR ACUTE TEST[1]

1.	Test Type	Static, non-renewal
2.	Temperature (^{o}C):	20 $\pm$ 1 ^{o} C or 25 $\pm$ 1^{o}C
3.	Light quality:	Ambient laboratory illumination
4.	Photoperiod:	16 hr light, 8 hr dark
5.	Size of test vessels:	250 mL minimum
6.	Volume of test solution:	Minimum 200 mL/replicate
7.	Age of fish:	1-14 days old and age within 24 hrs of each ~~the~~ others~~~~
8.	No. of fish per chamber	10
9.	No. of replicate test vessels per treatment	4
10.	Total no. organisms per concentration:	40
11.	Feeding regime:	As per manual, lightly feed test age larvae using concentrated brine shrimp nauplii while holding prior to initiating test
12.	Aeration:	None, unless dissolved oxygen (D.O.) concentration falls below 4.0 mg/L, at which time gentle single bubble aeration should be started at a rate of less than 100 bubbles/min. (Routine D.O. check is recommended.)
13.	dilution water:[2]	Receiving water, other surface water, synthetic water adjusted to the hardness and alkalinity of the receiving water (prepared using either Millipore Milli-Q^{R} or equivalent deionized and reagent grade chemicals according to EPA acute toxicity test manual) or deionized water combined with mineral water to appropriate hardness.
14.	Dilution series	$\geq$ 0.5, must bracket the permitted RWC

15.	Number of dilutions[3]	5 plus receiving water and laboratory water control and thiosulfate control, as necessary. An additional dilution at the permitted effluent concentration (% effluent) is required if it is not included in the dilution series.
16.	Effect measured	Mortality-no movement on gentle prodding
17.	Test acceptability	90% or greater survival of test organisms in dilution water control solution
18.	Sampling requirements	For on-site tests, samples must be used within 24 hours of the time that they are removed from the sampling device. For off-site tests, samples are used within 36 hours of collection.
19.	Sample volume required	Minimum 2 liters

Footnotes:

1. Adapted from EPA-821-R-02-012
2. Standard dilution water must have hardness requirements to generally reflect characteristics of the receiving water.

VI. CHEMICAL ANALYSIS

At the beginning of a static acute toxicity test, pH, conductivity, total residual chlorine, oxygen, hardness, alkalinity and temperature must be measured in the highest effluent concentration and the dilution water. Dissolved oxygen, pH and temperature are also measured at 24 and 48 hour

intervals in all dilutions. The following chemical analyses shall be performed on the 100 percent effluent sample and the upstream water sample for each sampling event.

Parameter	Effluent	Receiving Water	ML (mg/l)
Hardness[1,]	x	x	0.5
Total Residual Chlorine (TRC)[2, 3,]	x		0.02
Alkalinity	x	x	2.0
pH[4]	x	x	--
Specific Conductance	x	x	--
Total Solids	x		--
Total Dissolved Solids	x		--
Ammonia	x	x	0.1
Total Organic Carbon	x	x	0.5
Total Metals			
Cd	x	x	0.0005
Pb	x	x	0.0005
Cu	x	x	0.003
Zn	x	x	0.005
Ni	x	x	0.005
Al	x	x	0.02
Other as permit requires			

Notes:

1. Hardness may be determined by:
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     -Method 2340B (hardness by calculation)
     -Method 2340C (titration)

2. Total Residual Chlorine may be performed using any of the following methods provided the required minimum limit (ML) is met.
   - APHA Standard Methods for the Examination of Water and Wastewater , 21st Edition
     -Method 4500-CL E Low Level Amperometric Titration
     -Method 4500-CL G DPD Colorimetric Method

3. Required to be performed on the sample used for WET testing prior to its use for toxicity testing

VII. TOXICITY TEST DATA ANALYSIS

LC50 Median Lethal Concentration (Determined at 48 Hours)

Methods of Estimation:

- Probit Method
- Spearman-Karber
- Trimmed Spearman-Karber
- Graphical

See the flow chart in Figure 6 on p. 73 of EPA-821-R-02-012 for appropriate method to use on a given data set.

No Observed Acute Effect Level (NOAEL)

See the flow chart in Figure 13 on p. 87 of EPA-821-R-02-012 .

VIII. TOXICITY TEST REPORTING

A report of the results will include the following:

- Description of sample collection procedures, site description
- Names of individuals collecting and transporting samples, times and dates of sample collection and analysis on chain-of-custody
- General description of tests: age of test organisms, origin, dates and results of standard toxicant tests; light and temperature regime; other information on test conditions if different than procedures recommended. Reference toxicant test data should be included.
- All chemical/physical data generated. (Include minimum detection levels and minimum quantification levels.)
- Raw data and bench sheets.
- Provide a description of dechlorination procedures (as applicable).
- Any other observations or test conditions affecting test outcome.

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

Below is a form designed by the U.S. Environmental Protection Agency (EPA - New England) to assist POTWs with approved IPPs in evaluating whether their existing Technically Based Local Limits (TBLLs) need to be recalculated. The form allows the permittee and EPA to evaluate and compare pertinent information used in previous TBLLs calculations against present conditions at the POTW.

Please read direction below before filling out form.

ITEM I.

* In Column (1), list what your POTW's influent flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present influent flow rate. Your current flow rate should be calculated using the POTW's average daily flow rate from the previous 12 months.

* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

EPA - New England

Reassessment of Technically Based Industrial Discharge Limits

Under 40 CFR §122.21(j)(4), all Publicly Owned Treatment Works (POTWs) with approved Industrial Pretreatment Programs (IPPs) shall provide the following information to the Director: a written evaluation of the need to revise local industrial discharge limits under 40 CFR §403.5(c)(1).

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Please read direction below before filling out form.

ITEM I.

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* In Column (1) list what your POTW's SIU flow rate was when your existing TBLLs were calculated. In Column (2), list your POTW's present SIU flow rate.

* In Column (1), list what dilution ratio and/or 7Q10 value was used in your old/expired NPDES permit. In Column (2), list what dilution ration and/or 7Q10 value is presently being used in your new/reissued NPDES permit.

  The 7Q10 value is the lowest seven day average flow rate, in the river, over a ten year period. The 7Q10 value and/or dilution ratio used by EPA in your new NPDES permit can be found in your NPDES permit "Fact Sheet."

* In Column (1), list the safety factor, if any, that was used when your existing TBLLs were calculated.

* In Column (1), note how your bio-solids were managed when your existing TBLLs were calculated. In Column (2), note how your POTW is presently disposing of its biosolids and how your POTW will be disposing of its biosolids in the future.

ITEM II.

* List what your existing TBLLs are - as they appear in your current Sewer Use Ordinance (SUO).

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see p.,3-28 in EPA's *Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program, 12/87*.

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period. All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that

time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

  All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

  In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)

POTW Name & Address : _____

NPDES PERMIT # : _____

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance : _____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

_____

_____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain. _____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.				
Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	 Average (lb/day)	Column (2) MAHL Values (lb/day)	 Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses		Columns (2A) (2B) Water Quality Criteria (Gold Book)	
	Maximum (ug/l)	Average (ug/l)	From TBLLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.			
Column (1) NEW PERMIT Pollutants	Limitations (ug/l)	Column (2) OLD PERMIT Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns (2A) Biosolids Criteria From TBLLs (mg/kg)	(2B) Biosolids Criteria New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

ITEM III.

* Identify how your existing TBLLs are allocated out to your industrial community. Some pollutants may be allocated differently than others, if so please explain.

ITEM IV.

* Since your existing TBLLs were calculated, identify the following in detail:

  (1) if your POTW has experienced any upsets, inhibition, interference or pass-through as a result of an industrial discharge.

  (2) if your POTW is presently violating any of its current NPDES permit limitations - include toxicity.

ITEM V.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in pounds per day) received in the POTW's influent. Current sampling data is defined as data obtained over the last 24 month period.

  All influent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* Based on your existing TBLLs, as presented in Item II., list in Column (2), for each pollutant the Maximum Allowable Headwork Loading (MAHL) values derived from an applicable environmental criteria or standard, e.g. water quality, sludge, NPDES, inhibition, etc. For more information, please see p.,3-28 in EPA's *Guidance Manual on the Development and Implementation of Local Limits Under the Pretreatment Program, 12/87*.

Item VI.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants (in micrograms per liter) present your POTW's effluent. Current sampling data is defined as data obtained during the last 24 month period. All effluent data collected and analyzed must be in accordance with 40 CFR §136. Sampling data collected should be analyzed using the lowest possible detection method(s), e.g. graphite furnace.

* List in Column (2A) what the Water Quality Standards (WQS) were (in micrograms per liter) when your TBLLs were calculated, please note what hardness value was used at that

time. Hardness should be expressed in milligram per liter of Calcium Carbonate.

List in Column (2B) the current WQSs or "Chronic Gold Book" values for each pollutant multiplied by the dilution ratio used in your new/reissued NPDES permit. For example, with a dilution ratio of 25:1 at a hardness of 25 mg/l - Calcium Carbonate (copper's chronic WQS equals 6.54 ug/l) the chronic NPDES permit limit for copper would equal 156.25 ug/l.

ITEM VII.

* In Column (1), list all pollutants (in micrograms per liter) limited in your new/reissued NPDES permit. In Column (2), list all pollutants limited in your old/expired NPDES permit.

ITEM VIII.

* Using current sampling data, list in Column (1) the average and maximum amount of pollutants in your POTW's biosolids. Current data is defined as data obtained during the last 24 month period. Results are to be expressed as total dry weight.

  All biosolids data collected and analyzed must be in accordance with 40 CFR §136.

  In Column (2A), list current State and/or Federal sludge standards that your facility's biosolids must comply with. Also note how your POTW currently manages the disposal of its biosolids. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria will be and method of disposal.

In general, please be sure the units reported are correct and all pertinent information is included in your evaluation. If you have any questions, please contact your pretreatment representative at EPA - New England.

REASSESSMENT OF TECHNICALLY BASED LOCAL LIMITS
(TBLLs)

POTW Name & Address : _____

NPDES PERMIT # : _____

Date EPA approved current TBLLs : _____

Date EPA approved current Sewer Use Ordinance : _____

ITEM I.

In Column (1) list the conditions that existed when your current TBLLs were calculated. In Column (2), list current conditions or expected conditions at your POTW.		
	Column (1) EXISTING TBLLs	Column (2) PRESENT CONDITIONS
POTW Flow (MGD)		
Dilution Ratio or 7Q10 (from NPDES Permit)		
SIU Flow (MGD)		
Safety Factor		N/A
Biosolids Disposal Method(s)		

ITEM II.

EXISTING TBLLs			
POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)	POLLUTANT	NUMERICAL LIMIT (mg/l) or (lb/day)

ITEM III.

Note how your existing TBLLs, listed in Item II., are allocated to your Significant Industrial Users (SIUs), i.e. uniform concentration, contributory flow, mass proportioning, other. Please specify by circling.

ITEM IV.

Has your POTW experienced any upsets, inhibition, interference or pass-through from industrial sources since your existing TBLLs were calculated?

If yes, explain.

_____

_____

Has your POTW violated any of its NPDES permit limits and/or toxicity test requirements?

If yes, explain. _____

_____

ITEM V.

Using current POTW influent sampling data fill in Column (1). In Column (2), list your Maximum Allowable Headwork Loading (MAHL) values used to derive your TBLLs listed in Item II. In addition, please note the Environmental Criteria for which each MAHL value was established, i.e. water quality, sludge, NPDES etc.				
Pollutant	Column (1) Influent Data Analyses Maximum (lb/day)	 Average (lb/day)	Column (2) MAHL Values (lb/day)	 Criteria
Arsenic				
Cadmium				
Chromium				
Copper				
Cyanide				
Lead				
Mercury				
Nickel				
Silver				
Zinc				
Other (List)				

ITEM VI.

Using current POTW effluent sampling data, fill in Column (1). In Column (2A) list what the Water Quality Standards (Gold Book Criteria) were at the time your existing TBLLs were developed. List in Column (2B) current Gold Book values multiplied by the dilution ratio used in your new/reissued NPDES permit.

Pollutant	Column (1) Effluent Data Analyses		Columns (2A) (2B) Water Quality Criteria (Gold Book)	
	Maximum (ug/l)	Average (ug/l)	From TBLLs (ug/l)	Today (ug/l)
Arsenic				
*Cadmium				
*Chromium				
*Copper				
Cyanide				
*Lead				
Mercury				
*Nickel				
Silver				
*Zinc				
Other (List)				

*Hardness Dependent (mg/l - CaCO3)

ITEM VII.

In Column (1), identify all pollutants limited in your new/reissued NPDES permit. In Column (2), identify all pollutants that were limited in your old/expired NPDES permit.			
Column (1) NEW PERMIT Pollutants	Limitations (ug/l)	Column (2) OLD PERMIT Pollutants	Limitations (ug/l)

ITEM VIII.

Using current POTW biosolids data, fill in Column (1). In Column (2A), list the biosolids criteria that was used at the time your existing TBLLs were calculated. If your POTW is planing on managing its biosolids differently, list in Column (2B) what your new biosolids criteria would be and method of disposal.

Pollutant	Column (1) Biosolids Data Analyses Average (mg/kg)	Columns (2A) Biosolids Criteria From TBLLs (mg/kg)	(2B) Biosolids Criteria New (mg/kg)
Arsenic			
Cadmium			
Chromium			
Copper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Molybdenum			
Selenium			
Other (List)			

NPDES PERMIT REQUIREMENT
FOR
INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 C.F.R. 403.8(f)(2)(i), indicating compliance or noncompliance with the following:
   - baseline monitoring reporting requirements for newly promulgated industries
   - compliance status reporting requirements for newly promulgated industries
   - periodic (semi-annual) monitoring reporting requirements,
   - categorical standards, and
   - local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:
   - significant industrial users inspected by POTW (include inspection dates for each industrial user),
   - significant industrial users sampled by POTW (include sampling dates for each industrial user),
   - compliance schedules issued (include list of subject users),
   - written notices of violations issued (include list of subject users),
   - administrative orders issued (include list of subject users),
   - criminal or civil suits filed (include list of subject users) and,
   - penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 C.F.R. 403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for the Wastewater Treatment System and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of the Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Cadmium	f.) Total Nickel
b.) Total Chromium	g.) Total Silver
c.) Total Copper	h.) Total Zinc
d.) Total Lead	i.) Total Cyanide
e.) Total Mercury	j.) Total Arsenic

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the permittee is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

Permit Attachment E
Summary of Required Report Submittals

This table is a summary of the reports required to be submitted under this NPDES permit as an aid to the permittee(s). If there are any discrepancies between the permit and this summary, the permittee(s) shall follow the permit requirements. The addresses are for the submittal of hard copies.

When the permittee begins reporting using NetDMR, submittal of hard copies of many of the required reports will not be necessary. See permit conditions for details.

1 U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square - Suite 100 Boston, MA 02109-3912	**2** MassDEP Surface Water Discharge Permit Program 627 Main Street, 2nd Floor Worcester, Massachusetts 01608
3 MassDEP Central Regional Office- Bureau of Resource Protection 627 Main Street Worcester, MA 01608	

Requirement	**Due Date**	**Addressees**
Toxicity test samples shall be collected during the months of; March, June, September, and December [Part I.A Footnote 9]	Results shall be submitted by April 30, July 31, October 31, and January 31 of each year	1 and 2
If the average annual flow in any calendar year exceeds 80% of the facility's design flow, the permittee shall submit a report to MassDEP. [Part I.A.2.i.]	By March 31 of the following calendar year	1, 2 and 3
Notification of Sanitary Sewer Overflows [Part I.B]	Within 24 hours of SSO event.	1 and 3
The permittee shall prepare a map of the sewer collection system it owns. [Part I.C.4.a]	Within 30 months of the effective date of this permit	1, 2, and 3
The permittee shall develop and implement a Collection System Operation and Maintenance Plan. [Part I.C.4]	Within six (6) months of the effective date of the permit, the permittee shall submit to EPA and MassDEP	1, 2, and 3

The full Collection System O & M Plan shall be completed, implemented and submitted to EPA and MassDEP. [Part [I.C.5.b]	Within twenty four (24) months of the effective date of the permit, the permittee shall submit to EPA and MassDEP	1, 2, and 3
The permittee shall submit a summary report of activities related to the implementation of its Collection System O & M Plan during the previous calendar year. [I.C.6]	The report shall be submitted to EPA and MassDEP annually by March 31	1, 2, and 3
Annual Sludge Report [Part I.D.8]	Annually by February 19	1, 2, and 3
The permittee shall prepare and submit a written technical evaluation to the EPA analyzing the need to revise local limits. [Part I.E.]	Within 120 days of the effective date of this permit the report shall be submitted to EPA and MassDEP	1, 2, and 3
Annual report describing the permittee's pretreatment program activities. [Part I.E.3]	The report shall be submitted to EPA and MassDEP annually no later than November 30 of each year	1, 2, and 3
Monitoring results obtained during each calendar month shall be summarized and reported via NET DMR [Part I.F]	No later than the 15th day of the following month.	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
5 POST OFFICE SQUARE – SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: MA0100013

NAME AND ADDRESS OF APPLICANT:

Board of Selectmen
Town of Ayer
Brook Street
Ayer, MA 01432

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Ayer Wastewater Treatment Facility
Brook Street
Ayer, MA 01432

RECEIVING WATER: **Nashua River (Segment MA81-05)**

CLASSIFICATION: **Class B, Warm Water Fishery**

I. Proposed Action, Type of Facility, and Discharge Location

The Town of Ayer has requested that the U.S. Environmental Protection Agency (EPA) reissue its NPDES permit to discharge into the Nashua River. The Ayer Wastewater Treatment Facility (WWTF) is engaged in the collection and treatment of municipal and industrial wastewater.

The existing NPDES permit was signed on February 28, 2006, became effective on April 25, 2006 and expired on April 25, 2011. The applicant filed a complete application as required by 40 Code of Federal Regulations (CFR) Part 122.6 so the existing permit has been administratively extended and will remain in effect until a renewed permit has been issued. The existing permit and Draft Permit authorize a discharge only from Outfall 001, at the facility. The Draft Permit has been written to reflect the current operations and conditions at the facility. Attachments; Figure 1 – Location Map, Figure 2, Photo of Facility, A – Discharge Monitoring Report Data, B – Metals Data and Attachment C- Nashua River Schematic .

II. Quantitative Data

A quantitative description of the treatment plant's discharge in terms of significant effluent parameters based on recent monitoring data is shown in Attachment A.

III. Limitations and Conditions

The proposed effluent limitations and monitoring requirements may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The facility is a 1.79 million gallon per day (mgd) advanced wastewater treatment facility that serves 7,500 people and discharges to the Nashua River. The collection system discharging to the facility consists of separate sewers. The facility is designed to achieve BOD and TSS removal of approximately 90%, total phosphorus removal to 0.2 mg/l, and ammonia removal to between 1-2 mg/l. Significant upgrades to the facility were completed in March 2005.

The following is a brief description of the upgraded plant's treatment process: wastewater first passes through a cyclone grit removal system, followed by an influent chamber. Wastewater then flows to a clari-thickener, where primary solids are settled and removed, followed by anoxic and aerobic basins, where biological treatment takes place. Following the aeration basins, alum is added for phosphorus removal and wastewater then flows to secondary sedimentation tanks, where biological solids are removed. Secondary sedimentation tank effluent is then pumped to tertiary filters, for further solids removal. The final effluent is disinfected using ultraviolet light (UV). The facility has maintained the ability to use chlorine for disinfection in the case where the tertiary filter/UV system is offline. Chlorine may also be used for odor control.

Residential septage (pumped septic tank contents) is accepted from Ayer and surrounding towns. Septage is ground and then added to the wastewater flow upstream of the grit removal system. Sludge is stored in sludge holding tanks and periodically hauled to the Fitchburg Easterly facility for incineration and final disposal.

Overview of Federal and State Regulations
General Requirements

The Clean Water Act (CWA or the Act) prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the Act. NPDES permits are used to implement technology-based and water quality-based effluent limitations, as well as other requirements, including monitoring and reporting. This draft NPDES permit was developed in accordance with statutory and regulatory authorities established pursuant to the Act. The regulations governing the NPDES program are found in 40 CFR Parts 122, 124, and 125.

EPA is required to consider technology- based and water quality-based requirements when developing permit effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Act. Under Section 301(b)(1)(B) of the CWA, publicly owned treatment works (POTWs) must have achieved effluent limitations based upon secondary treatment by July 1, 1977. The secondary treatment requirements are set forth at 49 CFR Part 133.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to limits more stringent than technology-based limits where necessary to meet water quality standards. The Massachusetts Surface Water Quality Standards (MA SWQS) include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, be used unless a site specific criterion is established.

Massachusetts Surface Water Quality Standards also require that discharges of pollutants to surface waters be limited or prohibited to assure that surface water quality standards of the receiving waters are protected and maintained or attained. See 314 CMR 4.03(1)(a).

EPA regulations at 40 CFR 122.44(d)(1)(i), require that the permit limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. An excursion occurs if the projected or actual in-stream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the anti-backsliding requirement of the CWA. EPA's anti-backsliding provisions, found in Sections 402(o) and 303(d)(4) of the CWA and at 40 CFR 122.44(l), prohibit the relaxation of permit limits, standards, and conditions, except under certain, limited conditions. Therefore, the effluent limits in the reissued permit must be at least as stringent as those in the previous permit, unless a relaxation is allowed under the provisions of the law and regulations.

Waterbody Classification and Usage

The Ayer WWTF discharges to segment MA81-05 of the Nashua River. The Massachusetts Department of Environmental Protection (MassDEP) lists this segment of the river as a Class B Warm Water Fishery.

Class B waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated in 314 CMR 4.06, they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.

The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To meet this goal, the CWA requires states to develop information on the quality of their water resources and report this information to the EPA, the U.S. Congress, and the public. To this end, the EPA released guidance on November 19, 2001, for the preparation of an integrated "List of Waters" that could combine reporting elements of both §305(b) and §303(d) of the CWA. The integrated list allows the Massachusetts to provide the status of all their assessed waters in one list. Each water body or segment is listed in one of the following five categories:

1) Unimpaired and not threatened for all designated uses; 2) Unimpaired waters for some uses and not assessed for others; 3) Insufficient information to make assessments for any uses; 4) Impaired or threatened for one or more uses but not requiring the calculation of a Total Maximum Daily Load (TMDL); and 5) Impaired or threatened for one or more uses and requiring a TMDL. Section 303(d) of the CWA requires states to identify and list those water bodies that are not expected to meet surface water quality standards after the implementation of technology based controls and, as such, require the development of Total Maximum Daily Load.

The most recent water quality assessment report prepared by the Massachusetts Department of Environmental Protection (MassDEP) is the Nashua River Watershed 2003 Water Quality Assessment Report[1], published in August 2008. A copy of the Assessment Report can be reviewed at: http://www.mass.gov/eea/agencies/massdep/water/watersheds/nashua-river-basin-2003.html.

The Final Massachusetts Year 2012 Integrated Lists of Waters, prepared in part using information from the assessment report is available on the MassDEP website at: http://www.mass.gov/eea/docs/dep/water/resources/07v5/12list2.pdf. Segment MA81-05 of the Nashua River is listed as not being in attainment of state water quality standards and is listed as a Category 5 Water, "Waters requiring a TMDL", with specific impairment causes listed as: *Aquatic Macroinvertebrate Bioassessments, Escherichia coli, Phosphorus (Total), Sediment Bioassays--Acute Toxicity Freshwater*. See page 160 of the report.

River Flow and Available Dilution

Water quality-based limits are established with the use of a calculated available dilution. 314 CMR 4.03(3)(a) of the MA SWQS requires that effluent dilution be calculated based on the receiving water 7Q10. The 7Q10 is the lowest observed mean river flow for 7 consecutive days, occurring over a 10-year recurrence interval. Additionally, the facility design flow is used to calculate available effluent dilution, see 40 CFR §122.45(b)(1). The facility design flow is 1.79 million gallons per day or 2.8 cubic feet per second (cfs).

The Nashua River begins at the confluence of the North and South Nashua Rivers. The Fitchburg East and Leominster POTWs are located upstream of Ayer on the North Nashua River. Water quality-based permit limits for total phosphorus found later in this fact sheet are part of a wasteload allocation that includes the upstream POTWs. To be consistent throughout the shared watershed and shared dilution, the 7Q10 upstream of the Ayer discharge was calculated using the same general methodology that was used to establish the 7Q10 flows at Leominster and East Fitchburg. This methodology used updated 7Q10 flows for the USGS gage on the North Nashua River at Leominster [Gage number 01094500] and the main stem of the Nashua River Pepperell [Gage number 01096500], dry weather flows from the wastewater treatment plants between the gages, the dry weather release from the Wachusett Reservoir and the upstream watershed areas associated with pertinent locations in the watershed.

The specific information is as follows:

	7Q10 flow cfs	Watershed Area, mi^2	
Pepperell gage	40.1	435	flow based on the period from 1992-2012
Leominster gage	25.3	110	flow based on the period from 1992-2012
Wachusett Reservoir Outlet	2.8	119	flow from MWRA Clinton fact sheet
Ayer		326	

1 MassDEP. 2008.. *Nashua River Watershed 2003 Water Quality Assessment Report*, CN 360.0 Massachusetts Department of Environmental Protection, Division of Watershed Management, Worcester, MA.

Dry Weather Monthly Average Flow	cfs	mgd	
MWRA Clinton	4.13	2.67	Lowest monthly average during June–Sept, 2010-2012
Ayer	1.47	0.95	Lowest monthly average during June–Sept, 2010-2012

EPA first subtracted the Leominster gage 7Q10 from the Pepperell gage 7Q10, which yields 14.8 cfs. Then, the regulated portion of this flow (the combined MWRA Clinton and Ayer dry weather flows and the Wachusett Reservoir release – 8.4 cfs) was subtracted to determine the unregulated flows entering the watershed between the gages. This value is 6.4 cfs.

Next, the tributary watershed area generating this flow was calculated by subtracting the combined watershed area upstream of the Wachusett Reservoir and the Leominster gage (229 mi^2) from the area at the Pepperell gage (435 mi^2), yielding 206 mi^2.

The unregulated flow of 6.4 cfs was then divided by the calculated watershed area of 206 mi^2 to calculate a flow factor of 0.031 cfs/mi^2. This is the unregulated flow per square mile generated by the portion of the watershed downstream of the Wachusett Reservoir and Leominster gage, and upstream of the Pepperell gage.

The watershed area downstream of the Wachusett Reservoir outlet and the Leominster gage and upstream of the Ayer discharge was calculated by subtracting the watershed areas at the Wachusett Reservoir (119 mi^2) and the Leominster gage (110 mi^2) from the area at Ayer (326 mi^2), yielding a watershed area of 97 mi^2. The total unregulated flow from this portion of the watershed was then calculated by multiplying the flow factor of 0.031 cfs/mi^2 by the watershed area of 97 mi^2, yielding a flow of 3.0 cfs.

Finally, the 7Q10 at Ayer was calculated by adding the unregulated flow calculated above (3.0 cfs), the regulated flows from the MWRA Clinton treatment plant (4.13 cfs) and the Wachusett Reservoir release (2.8 cfs), and the 7Q10 flow measured at the Leominster gage (25.3 cfs), yielding a flow of 35.24 cfs.

$$\text{Dilution Factor (7Q10)} = \frac{(35.24 \text{ cfs} + 2.8 \text{ cfs})}{2.8 \text{ cfs}} = 13.6$$

The 7Q10 dilution factor of 13.6 above differs minimally from the dilution factor of 13 for the previous Ayer permit.

Permit Limits and Effluent Data

Effluent Flow

The annual rolling average flow limit in the Draft Permit is the same as in the existing permit, 1.79 mgd (2.8 cfs). The 12-month average flow for 2012 was 1.3 mgd. The maximum daily flow rate for 2012 was 3.0 mgd.

Federal regulations found at 40 CFR §122.45(b)(i) require that effluent limitations for POTWs be calculated based on design flow, which is found in the Permit Application Form 2A, Part A, Section a.6. Flow is to be measured continuously. The permittee shall report the annual average monthly flow using the annual rolling average method (See Permit Footnote 2). The maximum, minimum and total flow for each operating date shall also be reported**.**

Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS), Dissolved Oxygen (DO), BOD_5 and TSS

The Draft Permit proposes the same BOD_5 and TSS limitations as in the existing permit. The average monthly and average weekly limits are based on the secondary treatment requirements set forth at 40 CFR 133.102 (a)(1), (2), 40 CFR 133.102 (b)(1), (2) and 40 CFR 122.45 (f) and are a monthly average BOD_5 and TSS concentration of 30 mg/l, and a weekly average concentration of 45 mg/l.
The Draft Permit requires the permittee to report the maximum BOD_5 and TSS values each month, but does not establish a maximum daily effluent limit. The monitoring frequency continues to be once per week.

The Draft Permit also contains 85% BOD_5 and TSS removal limitations based on the requirements of 40 CFR 133.102(3). These limitations are the same as in the existing permit. A review of DMR data for January 2011 through December 2012 shows compliance with all BOD_5 and TSS limits.

BOD_5 and TSS Mass Loading Calculations:

Calculations of maximum allowable loads for average monthly and average weekly BOD_5 and TSS are based on the following equation:

L = C x DF x 8.34 where:
L = Maximum allowable load in lbs/day (or kg/day).
C = Maximum allowable effluent concentration for reporting period in mg/l.
Reporting periods are average monthly and weekly and daily maximum.
DF = Facility design flow in MGD.
8.34 = Factor to convert effluent concentration in mg/l and design flow in MGD to lbs/day.
3.79 = Factor to convert effluent concentration in mg/l and design flow in MGD to kg/day.

(Concentration limit) [30] X 8.34 (Constant) X 1.79 (Design flow) = 448 lb/day
(Concentration limit) [45] X 8.34 (Constant) X 1.79 (Design flow) = 672 lb/day

(Concentration limit) [30] X 3.79 (Constant) X 1.79 (Design flow) = 204 kg/day
(Concentration limit) [45] X 3.79 (Constant) X 1.79 (Design flow) = 305 kg/day

DO and pH

The dissolved oxygen limit, "no less than 6.0 mg/l", is based on water quality considerations for this segment of the river and is the same as the limit in the existing permit. The state Class B in-stream water quality standard for "warm water fisheries" is 5.0 mg/l as found at 314CMR 4.05(3)(b)1. The effluent DO requirement, which is 1.0 mg/l higher than the in-stream criteria, will reduce the DO "sag" caused by the introduction of BOD in the effluent. There have been two low DO concentrations reported in the past two years; August of 2011 (5.8 mg/l) and December 2012 (4.6 mg/l).

The Draft Permit has pH limits that are at least as stringent as the requirements set forth at 40 CFR 133.102(c) and the MA SWQS at 314 CMR 4.05(3)(b)3. The State's water quality standards require Class B waters maintain a pH range of 6.5 through 8.3 standard units with not more than 0.5 standard units outside of the receiving water background range.

The water quality standards also require there be no change from background conditions that would impair any use assigned to this class. There was one low pH (6.4 September 2012) reported during the past two years.

Fecal coliform bacteria and Escherichia coli (*E. coli*) bacteria

On December 29, 2006, the State revised the bacteria criteria in its water quality standards for Class B waters, changing the criteria from fecal coliform bacteria to *Escherichia coli* (*E. coli)* bacteria. EPA approved this revision on September 19, 2007.

The permittee shall transition from fecal coliform limits to *E. coli* with this permit reissuance. The permittee is in the process of replacing the existing UV disinfection system with more efficient UV units.

The *E. coli* bacteria limitations are a monthly average geometric mean of 126 colony forming units per 100 ml (cfu/ml) and a maximum daily value of 409 cfu/100 ml. The maximum daily value is the 90% distribution of the geometric mean of 126 cfu/100 ml. The monitoring frequency remains once per week.

The Massachusetts Water Quality Standards (WQS) Implementation Policy allows for seasonal disinfection. The Nashua River flows into New Hampshire where WQS do not allow for seasonal disinfection, therefore, the permit requires year-round disinfection of the effluent.

Total Residual Chlorine (TRC)

The Draft Permit includes total residual chlorine limitations that are based on state water quality standards. The permittee must test daily for TRC when it is in use. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The water quality criteria established for chlorine are 19 ug/l daily maximum (Criterion Maximum Concentration) and 11ug/l (Criterion Continuous Concentration) monthly average in the receiving water. Given a dilution factor of 13.6, water quality-based total residual chlorine limitations may be calculated as follows:

Total Residual Chlorine (TRC) Limitations based on criteria:

(Acute criteria x dilution factor) = Acute (Maximum Daily Limit)
(19 ug/l x 13.6) = 258 ug/l = 0.26 mg/l

(Chronic criteria x dilution) = Chronic (Monthly Average Limit)
(11 ug/l x 13.6) = 150 ug/l = 0.15 mg/l

These limits are essentially the same as the limits in the current permit. The Draft Permit carries forward the TRC limits from the current permit consistent with anti-backsliding provisions found in 40 CFR §122.44 and CWA Section 402(o). The Draft Permit therefore includes a monthly average limit of 0.14 mg/l and a daily maximum limit of of 0.25 mg/l. The sampling frequency remains at once per day when in use.

Metals

Hardness Dependent Metals

Certain metals in water can be toxic to aquatic life. There is a need to limit toxic metal concentrations in the effluent where aquatic life may be impacted. An evaluation of the concentration of metals in the facility's effluent from Whole Effluent Toxicity (WET) reports submitted between June 2010 and December of 2012 was used to determine reasonable potential for toxicity caused by aluminum, cadmium, chromium, copper, lead, nickel and zinc.

Metals may be present in both dissolved and particulate forms in the water column. However, extensive studies suggest that it is the dissolved fraction that is biologically available, and therefore, presents the greatest risk of toxicity to aquatic life inhabiting the water column.

This conclusion is widely accepted by the scientific community both within and outside of EPA (Water Quality Standards Handbook: Second Edition, Chapter 3.6 and Appendix J, EPA 1994 [EPA 823-B-94-005a]. Also see http://www.epa.gov/waterscience/standards/ handbook/chapter03.html#section6. As a result, water quality criteria are established in terms of dissolved metals.

However, many inorganic components of domestic wastewater, including metals, are in the particulate form, and differences in the chemical composition between the effluent and the receiving water affects the partitioning of metals between the particulate and dissolved fractions as the effluent mixes with the receiving water, often resulting in a transition from the particulate to dissolved form (*The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007]). Consequently, quantifying only the dissolved fraction of metals in the effluent prior to discharge may not accurately reflect the biologically-available portion of metals in the receiving water. Regulations at 40 CFR 122.45(c) require, with limited exceptions, that metals limits in NPDES permits be expressed as total recoverable metals.

EPA's Office of Water - Office of Science and Water Technology stated in a letter dated July 7, 2000 that "[t]he hardness of water containing the discharged toxic metal should be used for determining the applicable criterion. Thus the downstream hardness should be used." The theoretical hardness of the Nashua River downstream of the treatment plant under 7Q10 low flow conditions were calculated based on ambient and effluent hardness data reported in the recent toxicity tests conducted in 2010 and 2011 in Table 2, Nashua River Hardness. The hardness is reported as an equivalent concentration of calcium carbonate.

Table 2. Nashua River Hardness

WET Test Date	Effluent Hardness, mg/l	Ambient Hardness, mg/l
12/11	100	24
9/11	140	26
6/11	130	33
3/11	110	22
12/10	140	39
9/10	150	34
6/10	150	34
3/10	120	25
Median	**135**	**30**

Calculation of hardness in the receiving water downstream of the WWTF:

In order to determine the hardness downstream of the treatment plant during the 7Q10 low flow periods, the effluent and ambient hardness values from whole effluent toxicity tests conducted in July and October were used in the mass balance equations:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

Where:

Q_s 7Q10 river flow upstream of plant is 35.24 cfs
$Q_{d,}$ Discharge flow from plant is 1.79 MGD (2.8 cfs)
$Q_{r,}$ Combined river flow (7Q10 + plant flow) is 2.8 cfs + 35.24 = 38.04cfs
$C_{s,}$ Upstream hardness concentration is 30
C_d Effluent hardness is 135
C_r Receiving water hardness downstream

Calculation:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r} = \frac{(2.8)(135 \text{ mg/l}) + (35.24 \text{ cfs})(30 \text{ mg/l})}{(38.04 \text{ cfs})} = 38 \text{ mg/l}$$

For metals with hardness-based water quality criteria, the criteria were determined using the equations in *National Recommended Water Quality Criteria: 2002*, using the appropriate factors for the individual metals found in the MA SWQS (see table below). As described above, the downstream hardness was calculated to be 38 mg/l as $CaCO_3$, using a mass balance equation with the design flow, and receiving water 7Q10. The downstream hardness was used to determine the total recoverable metals criteria. The following table presents the factors used to determine the acute and chronic total recoverable criteria for each metal:

Metal	Parameters				Total Recoverable Criteria	
	Ma	ba	mc	bc	Acute Criteria (CMC)* (ug/L)	Chronic Criteria (CCC)** (ug/L)
Aluminum	—	—	—	—	750	87
Cadmium	1.0166	-3.9240	0.7409	-4.7190	0.80	0.13
Copper	0.9422	-1.7000	0.8545	-1.7020	5.63	4.08
Lead	1.2730	-1.4600	1.2730	-4.7050	23.82	0.93
Nickel	0.8460	2.2550	0.8460	0.0584	206.93	23.01
Zinc	0.8473	0.8840	0.8473	0.8840	52.78	52.78

*Acute Criteria (CMC) = exp{ma*ln(hardness)+ba}
**Chronic Criteria (CCC) = exp{mc*ln(hardness)+bc}

In order to determine whether the effluent has the reasonable potential to cause or contribute to an exceedence above the in-stream water quality criteria for each metal, the following mass balance is used to project in-stream metal concentrations downstream from the discharge.

$$Q_d C_d + Q_S C_S = Q_r C_r$$

rewritten as:

$$C_r = \frac{Q_d C_d + Q_S C_S}{Q_r}$$

where:

Q_d = effluent flow (design flow = 1.79 mgd = 2.8 cfs)
C_d = effluent metals concentration in ug/L (95th percentile)
Q_S = stream flow upstream (7Q10 upstream = 35.24 cfs
C_S = background in-stream metals concentration in ug/L (median)
Q_r = resultant in-stream flow, after discharge ($Q_S + Q_d$ = 35.24 + 2.8 cfs = 38.04 cfs
C_r = resultant in-stream concentration in ug/L

EPA bases its determination of "reasonable potential" on a characterization of the upper bound of expected effluent concentrations based on a statistical analysis of the available monitoring data. As noted in the *Technical Support Document for Water Quality Based Toxics Control* (EPA 1991) ("TSD"), "[a]ll monitoring data, including results for concentrations of individual chemicals, have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty." Thus with a limited data set, the maximum concentration that has been found in the samples may not reflect the full range of effluent concentration.

To account for this, EPA has developed a statistical approach to characterizing effluent variability when the monitoring dataset includes 10 or more samples.[2] As "experience has shown that daily pollutant discharges are generally lognormally distributed," *TSD* at App. E, EPA uses a lognormal distribution to model the shape of the observed data, unless analysis indicates a different distributional model provides a better fit to the data. The model parameters (mean and variance) are derived from the monitoring data. The model parameter μ is the mean of the natural logs of the monitoring data values, while σ is the standard deviation of the natural logs of the monitoring data values.

The lognormal distribution generally provides a good fit to environmental data because it is bounded on the lower end (i.e. you cannot have pollutant concentrations less than zero) and is positively skewed. It also has the practical benefit that if an original lognormal data set X is logarithmically transformed (i.e. Y = ln[X]) the resulting variable Y will be normally distributed. Then the upper percentile expected values of X can be calculated using the z-score of the standardized normal distribution (i.e. the normal distribution with mean = 0 and variance = 1), a common and relatively simple statistical calculation. The pth percentile of X is estimated by

$X_p = \exp(\mu_y + z_p \times \sigma_y)$, where μ_y = mean of Y
σ_y = standard deviation of Y
Y = ln[X]
z_p = the z-score for percentile "p"

2 A different statistical approach is applied where the monitoring data set includes less than 10 samples.

For the 95th percentile, $z_{95} = 1.645$, so that

$$X_{95} = \exp(\mu_y + 1.645 \times \sigma_y)$$

The 95th percentile value is used to determine whether a discharge has a reasonable potential to cause or contribute to an exceedance of a water quality standard. The combination of the upper bound effluent concentration with dilution in the receiving water is calculated to determine whether the water quality criteria will be exceeded.

If there is reasonable potential (for either acute or chronic conditions), the appropriate limit is then calculated by rearranging the previous mass balance equation to solve for the effluent concentration (C_d) using the criterion as the resultant in-stream concentration (C_r). See the table on the next page for the results of this analysis with respect to aluminum, cadmium, chromium, copper, lead, nickel and zinc.

Metal	Qd	Cd[1] (95th Percentile)	Qs	Cs[2] (Median)	Qr = Qs + Qd	Cr = (QdCd+QsCs)/Qr	Criteria		Reasonable Potential?	Limit = (Qr*Criteria-QsCs)/Qd	
	cfs	ug/l	cfs	ug/l	cfs	ug/l	Acute (ug/l)	Chronic (ug/l)	Cr > Criteria	Acute (ug/l)	Chronic (ug/l)
Aluminum	2.77	1227	35.24	75	36.6	166.1	750	87	Y (chronic only)	N/A	87
Cadmium		0		0		0	10.5	1.7	N	N/A	N/A
Copper		23.3		6		7.6	5.63	4.08	Y	5.63*	4.08*
Lead		1.8		2		2.1	23.82	0.93	Y (chronic only)	N/A	1
Nickel		5.2		0		0.4	206.93	23.01	N	N/A	N/A
Zinc		42		7		9.9	52.78	52.78	N	N/A	N/A

[1] Values calculated using data from the 2008-2012 WET testing (see Attachment B).
[2] Median upstream data taken from Whole Effluent Toxicity (WET) testing on the Nashua River just upstream of the Ayer WWTF (see Attachment B).

- The calculated limits are below the criteria. The permit limits will be equivalent to the criteria.

As indicated in the table above, there is reasonable potential (for either acute or chronic conditions) that the discharge of aluminum, copper, and lead will cause or contribute to an exceedance of applicable water quality criteria. Hence, metals limits are included in the Draft Permit.

Reasonable potential is then determined by comparing this resultant in-stream concentration (for both acute and chronic conditions) with the criteria for each metal. In EPA's TSD, box 3-2 describes the statistical approach in determining if there is reasonable potential for an excursion

Alum ($Al_2(SO_4)_3$) is added in the treatment process to reduce effluent total phosphorus. Alum contributes to high total aluminum in the effluent. Similar treatment facilities have switched to non-aluminum additives such as ferrous chloride ($FeCl_2$) and ferric chloride ($FeCl_3$) to control phosphorus and still meet phosphorus effluent limits. If the permittee discontinues the use of aluminum containing treatment additives and can demonstrate that effluent total aluminum concentrations are below 87 ug/l, EPA and MassDEP will consider this new information to be a basis for removing the aluminum limits from the permit.

The median effluent concentration of total aluminum exceeds the state water quality chronic. The permit shall include an average monthly limit of 87 ug/l.

Phosphorus

The Draft Permit continues the existing effluent limits and monitoring requirements for total phosphorus of 0.2 mg/l monthly average (April to October) and 1.0 mg/l monthly average (November to March), and the existing monitoring requirements for orthophosphorus (report only, November to March).

Phosphorus is an essential nutrient for plant growth, but excessive amounts of phosphorus in a water body have the potential to accelerate stream eutrophication, characterized by excessive plant growth, low dissolved oxygen, and large diurnal swings in dissolved oxygen in the water body.

Regulatory Background

The MA SWQS do not include numeric criteria for phosphorus. The Standards do include narrative criteria, including, in 314 CMR 4.05(5)(c) that states "unless naturally occurring, all surface waters shall be free from nutrients in concentrations that would cause or contribute to impairment of existing or designated uses and shall not exceed the site specific criteria developed in a TMDL or as otherwise established by the Department pursuant to 314 CMR 4.00. Any existing point source discharge containing nutrients in concentrations that would cause or contribute to cultural euthrophication, including the excessive growth of aquatic plants or algae, in any surface water shall be provided with the most appropriate treatment as determined by the Department, including, where necessary, highest and best practical treatment (HBPT) for POTWs and BAT for non POTWs, to remove such nutrients to ensure protection of existing and designated uses."

The existing permit has a 0.2 mg/l monthly average limit for total phosphorus from April 1 through October 31, which is based on Highest and Best Practical Treatment (HBPT) pursuant to 314 CMR 4.05(5)(c) of the MA SWQS, and a 1.0 mg/l monthly average limit from November 1 through March 31. The monthly average phosphorus data from the facility's DMRs averaged 0.14 mg/l during the warm weather seasons, from June 2009 through October 2012. See Table below.

Total Phosphorus (June 1 2009 through October 31, 2012)

Limits	0.2 mg/l	Report mg/l
MP Date	**MONTHLY AVERAGE**	**DAILY MAXIMUM**
06/30/2009	.08	.1
07/31/2009	.05	.1
08/31/2009	.06	.1
09/30/2009	.11	.2
10/31/2009	.11	.22
04/30/2010	.1	.14
05/31/2010	**.35**	**.98**
06/30/2010	.08	.14
07/31/2010	.11	.15
08/31/2010	.08	.22
09/30/2010	.14	.17
10/31/2010	.16	.65
04/30/2011	.06	.09
05/31/2011	.05	.07
06/30/2011	.05	.07
07/31/2011	.07	.12
08/31/2011	.06	.08
09/30/2011	.16	.26
10/31/2011	.12	.17
04/30/2012	.1	.14
05/31/2012	.23	.68
06/30/2012	.09	.16
07/31/2012	.14	.2
08/31/2012	.17	.28
09/30/2012	.74	.16
10/31/2012	.22	.42
Average	0.14	0.23
Median	0.11	0.17

The Massachusetts Year 2012 Integrated List of Waters, Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act, list the Nashua River, Segment, MA81-05 [into which Ayer discharges] as a Category 5 Waters, "Waters requiring a TMDL" for the Impairments; *Aquatic Macroinvertebrate Bioassessments, Escherichia coli, Phosphorus (Total), Sediment Bioassays--Acute Toxicity (Freshwater)*. See page 160 of the report.

MassDEP has prepared a draft TMDL for the Nashua River [see Draft Nashua River, Massachusetts Total Maximum Daily Load for the Nutrient Phosphorus, MassDEP DWM TMDL, (Report # 81–TMDL-2007-2)]. The final TMDL has not been completed or submitted to EPA for approval. Accordingly, while the draft TMDL does provide useful information is establishing an appropriate water quality-based phosphorus limit (Draft TMDL recommends 0.2 mg/l TP), the permit is not required to be consistent with the TMDL pursuant to 40 CFR 122.44(d)(1)(vii)(B), and so EPA has undertaken an analysis to independently assess the adequacy of the current phosphorus limits

In the absence of numeric criteria, EPA interprets the narrative criteria using the procedures found at 40 CFR Part 122.44(d)(1)(vi), including the use of available guidance and other relevant information.

In its development of the East Fitchburg NPDES permit, issued on June 22, 2010, EPA used a methodology that ensured attainment of Gold Book –recommended total phosphorus criteria of 100 ug/l at the confluence of the North and South Branches of the Nashua River, upstream of the Ayer discharge. This methodology considered treatment plant loads from the East Fitchburg, Leominster, and MWRA Clinton POTWs (all located upstream of the confluence of the North and South Branches) as well as an estimate of the background concentration in the receiving water. The East Fitchburg limit was intended be protective of water quality in segment MA81-05, including Pepperell Pond. The Fact Sheet (7/16/2009) that accompanied the East Fitchburg Draft Permit and the Response to Comments issued with the final permit detail the methodology. . See http://www.epa.gov/region1/npdes/permits/2010/finalma0100986permit.pdf

EPA decided to use this same methodology and assumptions to check that the 0.2 mg/l limit on total phosphorus in the current permit (and recommended in the draft TMDL) is sufficiently stringent to attain water quality standards downstream of the Ayer discharge, about 11.6 river miles downstream of the confluence of the North and South Branches. See Attachment C-Nashua River Schematic.

EPA used the following information/assumptions, in addition to information used in calculating the Ayer 7Q10:

- The in-stream total phosphorus concentration at the confluence of the North and South Branches of the river is 0.1 mg/l (Gold Book Criteria). This was the target threshold on which the limits for East Fitchburg, Leominster and MWRA Clinton limits were established.

- The watershed area at the confluence of the North and South Branches of the Nashua is 265 $mi^{2.}$

- The total phosphorus concentration of flow entering the river between the North/South confluence and the Ayer discharge is 0.024 mg/l. (There are no wastewater treatment plant discharges into this segment.) The total phosphorus concentration from non-point sources was determined by looking at 2003 data collected by the MassDEP for nearby brooks without point source phosphorus contributions. The non-point source contribution is calculated as follows:

Catacoonamug Brook

4/9/2003	0.01	
5/7/2003	0.02	
6/11/2003	0.022	
8/13/2003	0.026	
10/8/2003	0.016	

Nonacoicus Brook

4/9/2003	0.011	
5/7/2003	0.024	
6/11/2003	0.032	
7/16/2003	0.051	
8/13/2003	0.044	
10/8/2003	0.022	

Mulpus Brook

4/9/2003	0.01	
5/7/2003	0.018	
6/11/2003	0.026	
7/16/2003	0.023	
8/13/2003	0.032	average of duplicates
10/8/2003	0.015	
average	0.024	
median	0.022	

First, the 7Q10 flow at the North/South confluence is calculated. This is done by adding the flow at the Leominster gage (25.3 cfs) to the flows from the regulated sources, the MWRA Clinton treatment plant (4.13 cfs) and the release from the Wachusett Reservoir (2.8 cfs to the flow generated by the watershed area downstream of the Wachusett Reservoir dam and the Leominster gage. This flow can be estimated by calculating the watershed area of this segment (265-110-119 = 36 mi^2) and multiplying it by the flow factor of 0.031(se Ayer flow calculation) resulting in a flow of 1.12 cfs, yielding a total flow of 33.35 cfs (25.3+4.13+2.8+1.12).

Next, the flow entering the watershed between the confluence of the North and South Branches and the Ayer discharge can be calculated by subtracting the flow at the North/South confluence (33.35 cfs) from the flow at Ayer (35.24 cfs). This yields a flow of 1.89 cfs.

Finally the in-stream total phosphorus concentration downstream of Ayer was calculated using a mass balance equation. The calculation was done assuming Ayer discharging total phosphorus at its permitted concentration of 0.2 mg/l. The calculation was done with Ayer at its current dry weather flow as well as at design flow. If the calculated downstream concentration is equal to or less than 0.1 mg/l (the Gold Book criteria), the limit is protective of water quality standards.

The basic mass balance equation is:

$QrCr = QsCs+QdCd$

Q_r = Streamflow below outfall
C_r = Concentration below outfall
Q_s = Upstream flow
C_s = Upstream concentration
Q_d = Discharge flow
C_d = Discharge concentration

Solving for Cr yields:

$$Cr = \frac{QsCs+QdCd}{Qr}$$

In this case the upstream load (CsQs) is the sum of the load at the North/South confluence (at a concentration of 0.1 mg/l) plus the load entering between that location and the Ayer discharge (at a concentration of 0.024 mg/l).

Therefore, the total phosphorus concentration downstream of Ayer with Ayer discharging at summer low flow is:

$$\frac{(33.35)(0.1)+(1.89)(0.024)+(1.47)(0.2)}{33.35+01.89+1.47} = 0.1 \text{ mg/l}$$

The total phosphorus concentration downstream of Ayer with Ayer discharging at design flow is:

$$\frac{(33.35)(0.1)+(1.89)(0.024)+(2.77)(0.2)}{33.35+01.89+2.77} = 0.107 \text{ mg/l}$$

These calculations show that the current monthly average total phosphorus limit of limit of 0.2 mg/l for the months of April through October will result in attainment of the Gold Book-recommended criterion of 100 ug/l downstream of the discharge under typical summer flow conditions, and there will be only a very small exceedance under design flow conditions. Accordingly, EPA has determined that the 0.2 mg/l limit is protective of water quality standards and has retained this limit in the Draft Permit.

The current permit also has a monthly average total phosphorus limit of 1.0 mg/l for the months of November through March 31, to reduce deposition and storage of phosphorus in sediment during the non-growing season. Additionally, the current permit requires monitoring of dissolved ortho-phosphorus to measure the immediately bioavailable portion of the effluent total phosphorus. These requirements are carried over into the Draft Permit.

Whole Effluent Toxicity Testing

Under Section 301(b)(1) of the CWA, discharges are subject to effluent limitations based on water quality standards. The MA SWQS at 314 CMR 4.05(5)(e), include the following narrative statements and require that EPA criteria established pursuant to Section 304(a)(l) of the CWA be used as guidance for interpretation of the following narrative criteria:

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife. For pollutants not otherwise listed in 314 CMR 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822-R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department either establishes a site specific criterion or determines that naturally occurring background concentrations are higher.

Where the Department determines that naturally occurring background concentrations are higher, those concentrations shall be the allowable receiving water concentrations… Site specific limits, human health risk levels and permit limits will be established in accordance with… 314 CMR 4.05(5)(e)1, 2, 3, and 4.

National studies conducted by the EPA have demonstrated that industrial and domestic sources contribute toxic constituents, such as metals, chlorinated solvents aromatic hydrocarbons, and other pollutants to POTWs. The impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing. In addition, 40 CFR 122.44 (d) requires whole effluent toxicity limits in NPDES permits when the effluent has a reasonable potential to cause toxicity.

The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analysis; (2) bioavailability of pollutants after discharge is measured by toxicity testing including any synergistic effect of pollutants; and (3) pollutants for which there are inadequate analytical methods or criteria can be addressed. Therefore, toxicity testing is used in connection with pollutant-specific control procedures to control the discharge of toxic pollutants.

Therefore, the Draft Permit includes acute and chronic whole effluent toxicity limitations and monitoring requirements. (See, e.g., "Policy for the Development of Water quality based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784-July 24, 1985. See also EPA's Technical Support Document for Water Quality Based Toxics Control, EPA/505-90-001). The LC_{50} limitation prohibits acute effects, lethality, to more that 50% of the test organisms when exposed to POTW undiluted effluent for 48 hours.

The chronic-no observed effect concentration (C-NOEC) limitation in the Draft Permit prohibits chronic adverse effects such as survival, growth, and reproduction when aquatic organisms are exposed to the POTW discharges at the calculated available dilution.

The LC_{50} limitation in the Draft Permit is 100%, consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990, which requires an effluent limitation of 1 toxic unit (LC_{50} = 100%) for discharges with dilution factors less than 100.

The Chronic - No Observed Effect Concentration (C-NOEC) limitation in the Draft Permit prohibits chronic adverse effects that adversely affect survival, growth, or reproduction when aquatic organisms are exposed to the POTW effluent at the available dilution. The C-NOEC is established equal to the receiving water concentration, (the inverse of the dilution factor) consistent with MassDEP's "Implementation Policy for the Control of Toxic Pollutants in Surface Waters", February 23, 1990. The C-NOEC is the existing permit is 7.7%.

C-NOEC = Inverse of the receiving water concentration = (1/13.6)(100) = 7.3%

The Draft Permit carries forward the chronic WET limit from the previous permit based on anti-backsliding provisions found in 40 CFR §122.44. The reissued permit must include limits which are at least as stringent as those in the current permit. The chronic limit remains at ≥ 7.7%.

Chronic Modified Acute Ceriodaphnia WET test Results		
MP Date	**DAILY MN Acute LC50 100%**	**DAILY MN Chronic NOEC ≥ 7.7 %**
03/31/2011	**100**	**100**
06/30/2011	**100**	**100**
09/30/2011	**100**	**100**
12/31/2011	**100**	**25**
03/31/2012	**100**	**100**
06/30/2012	**100**	**100**
09/30/2012	**100**	**100**
12/31/2012	**100**	**50**

This Draft Permit continues to require four toxicity tests per year for the daphnid (*Ceriodaphnia dubia*) only. Tests are to be conducted in March, June, September, and December using the protocols in Permit Attachments A and B, Freshwater Chronic Toxicity Test Procedure and Protocol and Freshwater Acute Toxicity Test Procedure and Protocol to the Draft Permit.

Please note that the previous permit had one protocol that combined both the acute and chronic tests. However, the requirements for WET testing recently changed. It has come to EPA Region 1's attention that the modified acute toxicity test in the current permit, which is conducted as part of the chronic toxicity test, is not an approved method under 40 CFR Part 136. As of March 2013 the modified acute testing requirement is being replaced by a standalone acute toxicity test. The acute toxicity testing protocol is Attachment A to the Draft Permit.

INDUSTRIAL PRETREATMENT PROGRAM

The permittee is required to administer a pretreatment program based on the authority granted under 40 CFR §122.44(j), 40 CFR Part 403 and Section 307 of the Act. The permittee's pretreatment program received EPA approval on September 24, 1984 and, as a result, appropriate pretreatment program requirements were incorporated into the 2007 permit which was consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

Ayer has 4 Significant Industrial Users (SIUs)[3]. These are:

1) Cains Foods –Hauls all industrial wastewater offsite for disposal. There is an onsite industrial pre-treatment system connected to the sewer system that is currently unused. All sanitary wastewater goes to the POTW.

2) CPF - Pepsi Bottler – Segregates high strength organic waste and hauls this to other POTWs. The average daily flow from CPF is about 120,000 gpd, subject to BOD_5 and TSS limits of 400 mg/L. CPF neutralizes pH of this wastewater before discharge to the POTW.

3) EPIC- Pepsi Canner- Pepsi segregates its high strength organic waste and hauls this to other POTWs. The average daily industrial flow from EPIC is about 30,000 gpd subject to BOD_5 and TSS limits of 400 mg/L.

4) Vitasoy – Tofu manufacturer - Has an onsite biological pretreatment system and discharges approximately 100,000 gpd, subject to BOD_5 and TSS limits of 400 mg/L. Due to recent violations of flow, BOD_5 and TSS limitations, Vitasoy is under an order from the Town to update its slug control plan as well as to evaluate the pretreatment system's ability to consistently meet the local limits. Vitasoy has recently been intermittently hauling high strength waste to other disposers in order to meet the flow, BOD_5 and TSS limits.

There are 161 other small industrial and commercial users tied to the collection system that do not meet the definition of significant industrial user and do not appear to have the capability to cause pass-through or interference at the POTW. These industries are subject to the Town's sewer use ordnance.

The Federal Pretreatment Regulations in 40 CFR Part 403 require the permittee to: (1) develop and enforce EPA approved specific effluent limits (technically-based local limits); (2) revise the local sewer-use ordinance or regulation, as appropriate, to be consistent with Federal Regulations; (3) develop an enforcement response plan; (4) implement a slug control evaluation program; (5) track significant noncompliance for industrial users; and (6) establish a definition of and track significant industrial users.

These requirements are necessary to ensure continued compliance with the POTW's NPDES permit and its sludge use or disposal practices. In addition to the requirements described above, the Draft Permit requires the permittee to submit to EPA in writing, within 180 days of the permit's effective date, a description of proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current federal pretreatment regulations. These requirements are included in the Draft Permit to ensure that the pretreatment program is consistent and up-to-date with all pretreatment requirements in effect**.**

The permittee must also continue to submit, by November 1st each year, an annual pretreatment report detailing the activities of the program for the previous year.

[3] November 2011 Ayer Annual Industrial Pretreatment Report

VI. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

The permit standard conditions for "Proper Operation and Maintenance" are found at 40 CFR §122.41(e). These require proper operation and maintenance (O & M) of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, permittees have a "duty to mitigate" as stated in 40 CFR §122.41(d). This requires permittees to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has the reasonable likelihood of adversely affecting human health or the environment.

In order to ensure proper O & M of the collection system, the Draft Permit includes requirements for the permittees to control infiltration and inflow (I/I). Infiltration is groundwater that enters the collection system through physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roof leaders, yard and area drains, sump pumps, manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection system may displace sanitary flow reducing the capacity and the efficiency of the treatment works and may cause bypasses of secondary treatment. It greatly increases the potential for sanitary sewer overflows (SSO) in separate systems. Infiltration and inflow (I/I) is approximately 250,000 gpd[4]. I/I is being addressed by the Town through manhole and sewer line repair.

The proposed permit includes several additional O & M requirements. The permittee is required to prepare a map of the sewer collection system within 30 months of the effective of the permit. The permittee is also required to complete and implement collection system operation and maintenance plans within 24 months of the effective date of the permit. Details regarding these requirements can be found in the Section C.4 and C.5 of the Draft Permit.

MassDEP has stated that inclusion of the I/I conditions in the NPDES permits is a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR §124.55(b).

VII. Sludge Information and Requirements

Sludge generated at the Ayer WTTF is incinerated at the East Fitchburg WWTP. In 2009, 2,918,900 gallons of sludge was sent for incineration.

Section 405(d) of the CWA requires that sludge conditions be included in all municipal permits. The sludge conditions in the Draft Permit satisfy this requirement and are taken from EPA's Standards for the Disposal of Sewage Sludge codified at 40 CFR Part 503 (February 6, 1989-54 FR 5746). The pollutants listed are those which are to be limited by 40 CFR Part 503.

VIII. Unauthorized Discharges

This permit only authorizes the discharge or treated wastewater from wastewater treatment plant outfall 001. Other discharges of wastewater, such as pump station emergency overflows or sanitary sewer overflows are not authorized by this permit and must be reported in accordance with reporting requirements found in Section D.1.e of Part II of the permit (24 hour reporting), including requirements for both oral notice within 24 hours and written notice within 5 days.

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[4] Source - August 2010 Permit Application, Page 7 Form 2S

VII. Anti-Backsliding

Federal anti-backsliding provisions are found in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) and generally prohibit the relaxation of permit limits, standards, and conditions. Anti-backsliding provisions apply to effluent limits based on technology, water quality, Best Professional Judgment and State Certification requirements. All limitations in the Draft Permit are as or more stringent than those in the current permit.

VIII. Anti-Degradation Review

The Massachusetts anti-degradation regulations (314 CMR 4.04) require that all existing uses of the Nashua River must be protected. MassDEP has indicated that it believes there will be no lowering of water quality and/or no loss of existing water uses for this segment of the river as a result of the Draft Permit and that no additional anti-degradation review is warranted.

IX. Essential Fish Habitat Determination

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C § 1801 et seq.(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. § 1855(b).

The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. § 1855 (b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

There is no "habitat of particular concern," as defined under § 600.815 (a)(9) of the Magnuson-Stevens Act, designated for this site.

EPA and MassDEP have determined that a formal EFH consultation with NMFS for this discharge is not required. The proposed discharge permit is developed to meet MA SWQS and will not adversely impact EFH.

X. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants ("listed species") and habitat of such species that have been designated as critical (a "critical habitat").

The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat. The United States Fish and Wildlife Service (USFWS) administer Section 7 consultations for freshwater species. The National Marine Fisheries Service (NOAA Fisheries) administers Section 7 consultations for marine species and anadromous fish.

EPA and the MassDEP have determined that an ESA consultation is not required for this discharge, since no listed species or critical habitats are located in an area that could be affected by the facility's discharge.

XI. Monitoring and Reporting

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA in accordance with 40 CFR §§122.41 (j), 122.44 (l), and 122.48.

The Draft Permit requires that the permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR. NetDMR is a national web-based tool for regulated CWA permittees to submit DMRs electronically via a secure Internet application to U.S. EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. NetDMR is accessed from the following url: http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, is provided on this website.

The Draft Permit requires the permittee to report monitoring results obtained during each calendar month using NetDMR, no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA as an electronic attachment to the DMR. Permittees must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

XII. State Certification Requirements

EPA may not issue a permit unless MassDEP with jurisdiction over the receiving water certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of MassDEP have reviewed the Draft Permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the Draft Permit will be certified.

XIII. Public Comment Period and, Procedures for Final Decision

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to the United States Environmental Protection Agency, 5 Post Office Square-Suite 100, Mailcode OEP06-1, Boston, Massachusetts 02109-3912.

Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the Draft Permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

XIV. EPA and MassDEP Contacts

Additional information concerning the Draft Permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Doug Corb
US Environmental Protection Agency
5 Post Office Square – Suite 100
Mailcode: OEP06-1
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1565
corb.doug@epa.gov

or

Claire Golden
Massachusetts Department of Environmental Protection
Division of Watershed Management
205B Lowell Street
Wilmington, Massachusetts 01887
Telephone: (978) 694-3244
claire.golden@state.ma.us

Date: August 29, 2013

Ken Moraff, Acting Director
Office of Ecosystems Protection
U.S. Environmental Protection Agency

Fact Sheet MA0100013 Attachment __

Fact Sheet arameter Limits	BOD 448 lb/d	BOD Mon. lb/d	BOD 30 mg/L	BOD 45 mg/L	BOD Mon. mg/L	TSS 448 lb/d	TSS Mon. lb/d	TSS 30 mg/L	TSS 45 mg/L	TSS Mon. mg/L	BOD 85 %	TSS 85 %
MP Date	**MO AVG**	**DAILY MX**	**MO AVG**	**WKLY AVG**	**DAILY MX**	**MO AVG**	**DAILY MX**	**MO AVG**	**WKLY AVG**	**DAILY MX**	**MO AV MN**	**MO AV MN**
01/31/2011	46.3	100.6	5.2	9.5	10.7	18.	52.5	1.9	3.2	4.6	98.4	99.3
02/28/2011	21.7	44.4	2.3	3.2	4.3	15.3	32.	1.6	2.6	2.8	99.3	99.2
03/31/2011	110.	182.	6.5	8.8	10.8	58.	106.2	3.3	4.8	5.7	94.3	99.
04/30/2011	79.2	105.9	5.7	6.3	7.	23.8	29.9	1.7	1.9	2.1	99.6	98.7
05/31/2011	71.5	168.5	5.7	9.8	11.9	25.4	36.4	2.	2.6	2.8	94.7	98.4
06/30/2011	69.4	101.9	6.2	6.5	8.5	27.	53.9	2.4	3.2	5.1	96.4	98.9
07/31/2011	57.7	101.7	5.7	7.2	9.2	34.9	54.3	3.5	5.2	6.5	96.6	98.8
08/31/2011	87.9	153.3	8.3	5.3	11.1	41.	69.	4.3	6.8	11.8	94.8	97.6
09/30/2011	104.	177.7	8.6	12.8	13.	62.4	159.7	5.2	8.9	12.6	92.8	97.6
10/31/2011	92.3	165.	6.6	10.7	11.7	50.5	73.2	3.5	3.6	5.4	94.8	98.6
11/30/2011	121.6	195.1	8.1	14.5	16.7	65.4	129.3	5.	8.	9.6	92.6	97.8
12/31/2011	107.7	143.2	8.1	11.05	1.5	23.7	48.1	1.8	3.	3.6	91.9	98.7
01/31/2012	114.5	164.7	10.4	12.3	14.	75.3	111.6	6.9	10.	10.4	93.7	96.5
02/29/2012	270.	332.5	21.7	30.9	37.3	125.5	252.7	12.	21.4	23.4	90.2	96.3
03/31/2012	109.7	178.8	10.4	14.4	17.5	44.1	101.5	4.3	7.5	9.6	96.7	98.7
04/30/2012	116.8	180.5	12.9	16.5	20.4	19.5	40.2	2.	3.5	4.2	91.5	99.4
05/31/2012	58.	179.8	5.3	12.	15.4	18.9	31.4	1.7	3.	2.7	96.4	99.6
06/30/2012	46.4	131.3	4.5	8.7	14.	23.5	40.	2.2	3.	3.8	98.2	99.3
07/31/2012	28.6	43.7	3.2	4.7	5.3	8.2	22.3	1.1	2.3	2.4	98.	99.6
08/31/2012	55.4	141.5	6.1	9.4	14.9	25.1	75.	2.7	4.8	14.9	96.1	99.2
09/30/2012	141.6	203.4	14.6	19.1	19.6	148.6	397.2	15.9	30.9	45.3	93.3	97.
10/31/2012	53.	113.	5.8	11.7	13.6	32.8	52.7	3.6	4.8	5.8	97.1	99.2
11/30/2012	141.3	406.9	13.2	19.4	38.3	24.	37.4	2.3	3.	3.9	95.3	99.5
12/31/2012	111.1	132.8		19.4	19.4	95.6	129.4	12.	22.	22.	96.9	96.9

Fact Sheet MA0100013 Attachment __

Parameter	TRC	TRC	Fecal	Fecal	Flow	Flow	DO	pH	pH
Limits	.14 mg/L	.25 mg/L	200 #/100mL	400 #/100mL	1.79 MGD	Req. Mon. MGD	6 mg/L	6.5 SU	8.3 SU
MP Date	MO AVG	DAILY MX	MO GEO	DAILY MX	12MO AVG	DAILY MX	DAILY MN	MINIMUM	MAXIMUM
01/31/2011			13.3	44.	1.264	4.049	8.7	7.1	7.5
02/28/2011			20.2	866.	1.17	4.039	9.1	7.03	7.51
03/31/2011			22.	267.	1.218	4.039	9.	7.	7.4
04/30/2011			13.8	53.	1.194	3.033	9.1	7.1	7.4
05/31/2011			16.3	96.	1.209	3.033	7.8	6.9	7.4
06/30/2011			11.1	100.	1.226	3.033	7.9	6.96	7.3
07/31/2011			15.	79.	1.128	3.033	6.9	7.1	7.5
08/31/2011	.2	.7	84.2	520.	1.241	3.033	5.8	7.	7.8
09/30/2011	.2	.46	117.5	1220.	1.287	3.033	7.2	6.8	7.3
10/31/2011	.09	.13	71.6	316.	1.337	3.033	7.8	6.8	7.2
11/30/2011	.07	.5	43.9	800.	1.379	3.033	7.	6.7	7.2
12/31/2011	.	.	112.	1000.	1.415	3.033	8.1	7.	7.5
01/31/2012	.05	.37	972.	1585.	1.404	3.033	9.1	7.2	7.6
02/29/2012	.11	.25	200.	400.	1.413	3.033	8.5	7.	7.45
03/31/2012	.14	.29	295.1	498.	1.352	2.077	8.5	6.9	7.5
04/30/2012	.09	.25	219.3	1350.	1.335	2.077	8.6	7.	7.6
05/31/2012	.09	.54	30.7	317.	1.339	2.154	8.	7.1	7.6
06/30/2012			75.7	498.	1.334	2.154	8.3	7.1	7.5
07/31/2012			305.7	1000.	1.013	1.202	7.1	6.9	7.6
08/31/2012	.21	.26	250.7	1180.	1.336	2.154	6.	6.5	7.5
09/30/2012	.14	.23	229.3	1000.	1.3	2.077	6.3	6.4	7.6
10/31/2012	.12	.22	242.6	1000.	1.304	2.077	7.2	7.	7.4
11/30/2012	.07	.22	199.1	1325.	1.252	2.077	6.6	6.8	7.3
12/31/2012	.11	.19	20.8	48.	1.246	1.884	4.6	6.6	7.3

Fact Sheet Attachment B

Effluent	**ug/L**						**Ambient**	ug/L				
Pram	**Al**	**Cd**	**Cu**	**pb**	**Ni**	**Zn**	**Al**	**Cd**	**Cu**	**pb**	**Ni**	**Zn**
12-Dec	330	<.5	15	<.5	4	16	53	<0.5	6	1	<2	7
12-Sep	380	<.5	8	<.5	4	7	53	<0.5	8	2	<2	5
12-Jun	82	<.5	18	<.5	3	23	110	<0.5	6	3	<2	6
12-Mar	240	<.5	9	<.5	4	9	54	<0.5	6	0.9	<2	5
11-Dec	1300	<.5	18	1	6	33	75	<0.5	2	1	<2	6
11-Sep	1100	<.5	10	<.5	4	16	120	<0.5	12	3	<2	8
11-Jun	210	<.5	10	<.5	4	25	83	<0.5	3	3	<2	5
11-Mar	85	<.5	9	<.5	4	13	140	<0.5	2	2	<2	10
10-Dec	60	<.5	12	0.7	4	28	61	<0.5	3	1	<2	8
10-Sep	88	<.5	19	2	4	18	54	<0.5	5	2	<2	7
10-Jun	61	<.5	22	<.5	4	33	89	<0.5	6	3	<2	8
Ave	360.6	Non-D	13.5	1.35	4.1	20.5	83.9	Non-D	5.3	2.09	Non-D	6.8
Max	**1300**	**Non-D**	**22**	**2**	**6**	**33**	**140**	**Non-D**	**12**	**3**	**Non-D**	**10**

Ambient median value

Al	Cu	Pb	Zn
53	2	0.9	5
53	2	1	5
54	3	1	5
54	3	1	6
61	5	2	6
75	6	2	7
83	6	2	7
89	6	3	8
110	6	3	8
120	8	3	8
140	12	3	10

Effluent		**Ambient**	
NH3	**pH**	**NHS**	**pH**
<0.1	7.41	<0.1	7.05
3.4	7.54	<0.1	7.11
<0.1	7.5	<0.1	7.5
8.5	7.58	<0.1	6.64
7.4	7.52	<0.1	6.67
1	7.46	<0.1	6.58
1.6	7.54	0.12	6.88
6.7	7.14	<0.1	6.39
0.16	7.56	<0.1	6.81
<0.1	7.8	<0.1	6.98
<0.1	7.72	N/A	7.02
3.372	7.536	Non-D	6.858
8.5	**7.8**	**Non-D**	**7.5**
	7.14		6.39

Attachment C

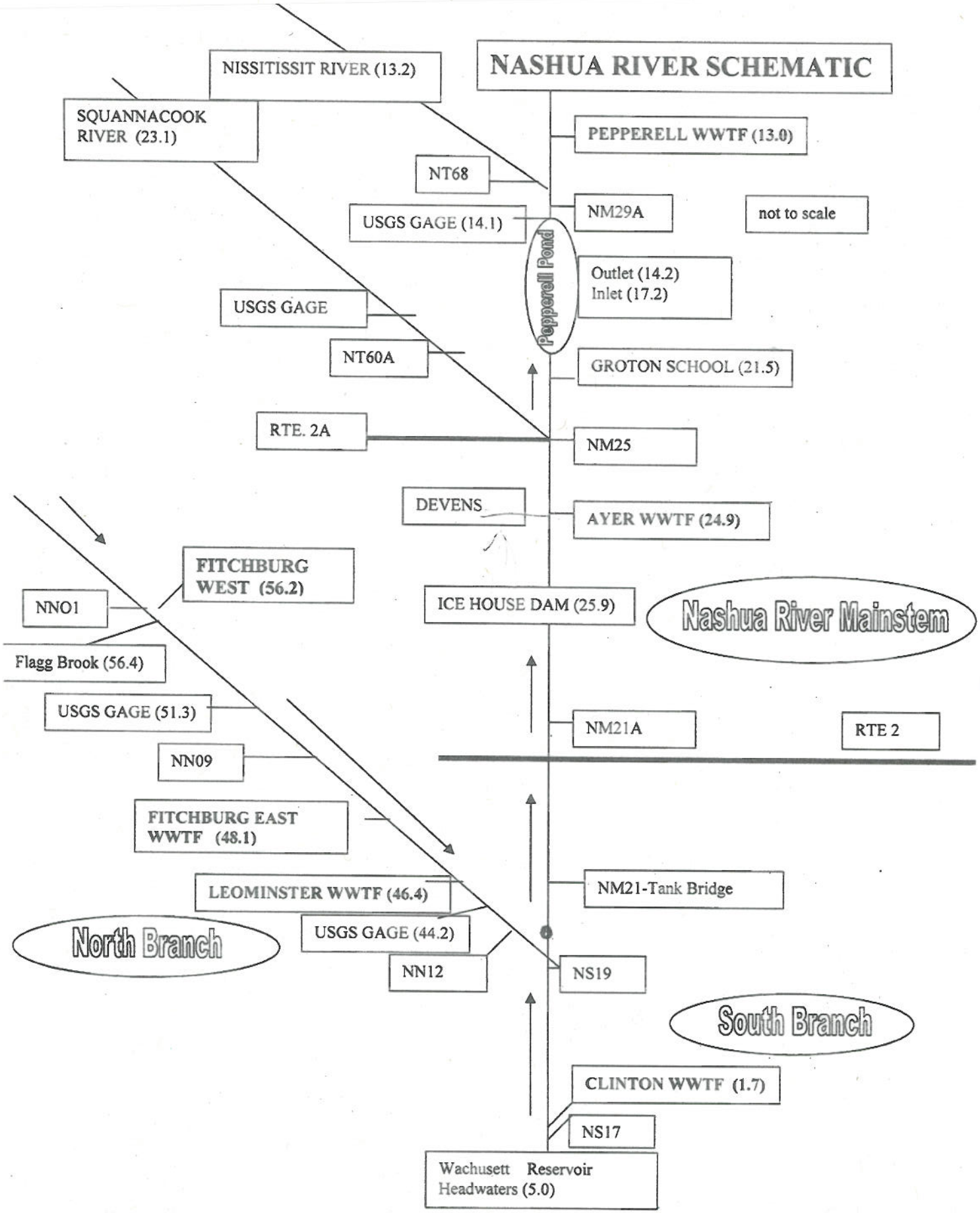
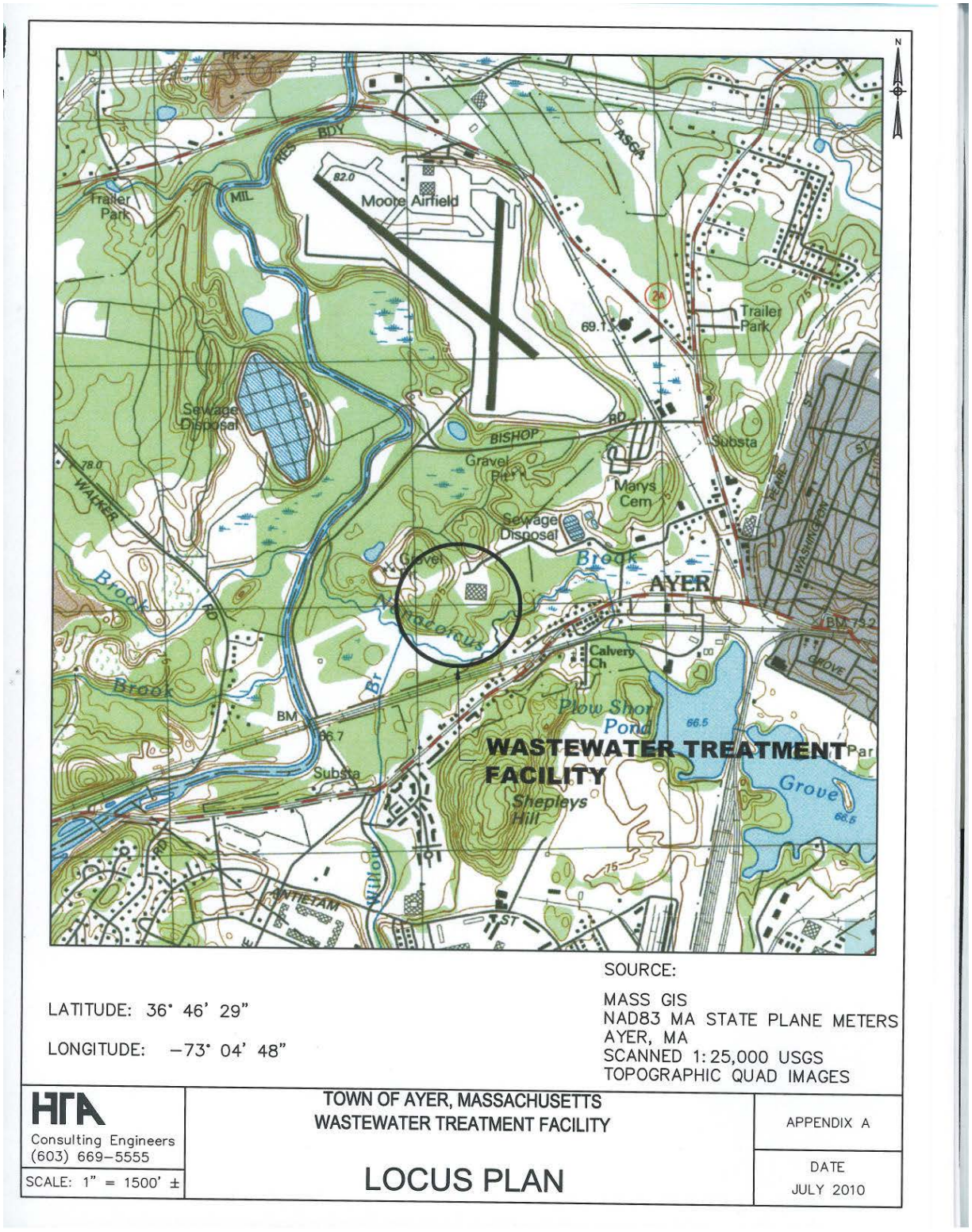


Figure 2: Nashua River Schematic

Not to Scale River milepoint listed in parentheses

Figure 1 Facility Location Map



LATITUDE: 36° 46' 29"

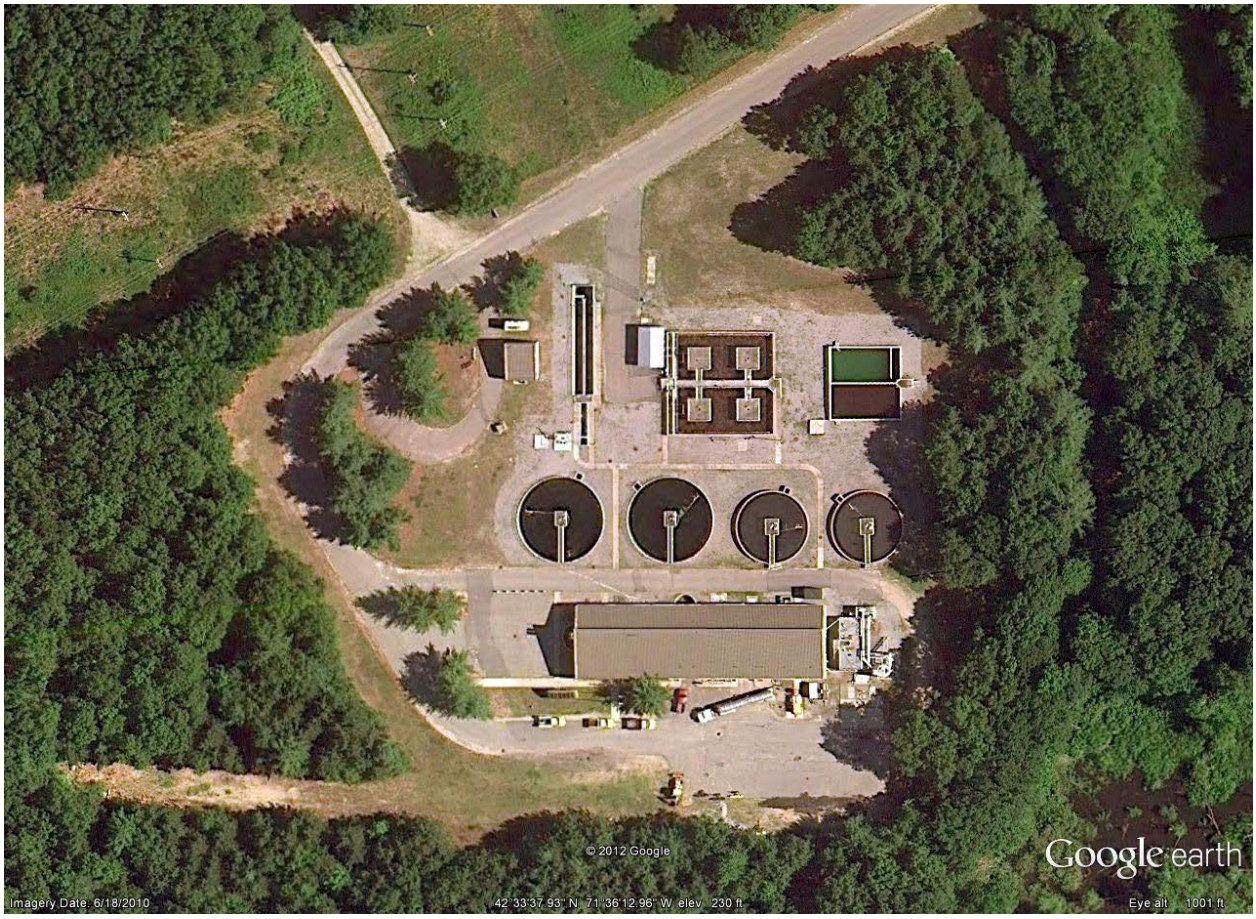
LONGITUDE: −73° 04' 48"

SOURCE:

MASS GIS
NAD83 MA STATE PLANE METERS
AYER, MA
SCANNED 1:25,000 USGS
TOPOGRAPHIC QUAD IMAGES

HTA Consulting Engineers (603) 669-5555	TOWN OF AYER, MASSACHUSETTS WASTEWATER TREATMENT FACILITY	APPENDIX A
SCALE: 1" = 1500' ±	LOCUS PLAN	DATE JULY 2010

Figure 2. Satellite Photo of Ayer Wastewater Treatment Facility



Response to Public Comments

Public notice period: **09/13/13 - 10/27/13 (Extended to 11/27/13 at the request of the permittee)**

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES Permit, MA0100013. The response to comments explains and supports the EPA determinations that form the basis of the final permit. From September 13, 2013 through November 27, 2013, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit, MA0100013, developed pursuant to a permit application from Ayer Wastewater Treatment Facility (WWTF), for the reissuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge treated municipal and industrial effluent from outfall number 001 to the Nashua River in Ayer, Massachusetts.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The permit includes substantially more stringent limits for total recoverable copper, new limits for total recoverable lead and total recoverable aluminum. The final permit includes compliance schedules to allow the permittee additional time to meet each of the metal limits.

Copies of the final permit may be obtained by writing or calling Doug Corb of EPA's NPDES Municipal Permits Branch (OEP 06-1), Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, MA 02109-3912; Telephone: (617) 918-1565or email: corb.doug@epa.gov.

Comments (1-8) submitted by: Mark Wetzel, P.E., Superintendent Ayer Department of Public Works (Letter dated November 26, 2013) and (**Comments 9 and 10**) submitted by Martha S, Morgan Water Programs Director Nashua River Watershed Association (NRWA) (letter dated November 23, 2013).

Comment No. 1 (Part I-A.1 Effluent Characteristic Parameter): Fecal Coliform to Escherichia Coli

The Town acknowledges this permit revision.

Response No. 1:

The permittee's comment does not request a change or question the contents of the draft permit and therefore, a further response from EPA and MassDEP is not required.

Comment No. 2 (Part I-A.1 Effluent Characteristic Parameter): Total Phosphorus

Seasonal Phosphorus limits are no longer "report only", there is a now a permit limit included in the Draft Permit. The report used to establish the phosphorus limits are from *Draft Nashua River Massachusetts Total Maximum Daily Load for the Nutrient Phosphorus* (2007) ("Draft TMDL Report"). The Draft TMDL Report indicates that the worst eutrophic conditions are encountered in the Pepperell Pond Impoundment, located in segment MA81-06. According to the Draft Fact Sheet attached to the permit, the water quality condition that EPA seeks to address with the proposed 0.2 mg/l limit is the listed impairment for nutrients in the Nashua River downstream of its confluence with the North Nashua River and eutrophication in the Pepperell Impoundment.

2a) According to the MADEP, the Final TMDL of the Nashua River is due within weeks of the comment period end date. As such, the Town requests that the "report only" requirement for phosphorus remain in place until such time that the EPA reviews and approves the TMDL. Although the Town's effluent data from June 1, 2009 – October 31, 2012 (summer months only) averages 0.14 mg/l, which is below the 0.2 mg/l summer discharge limit, the Town has only been able to meet the summer limit by adding aluminum bisulfate to its process. Since there is now a proposed aluminum limit of 0.087 mg/l included in the Draft permit, other alternatives for meeting the phosphorus limit must be evaluated.

2b) The Town also understands that the EPA and the MADEP may be able to remove the effluent permit limit for aluminum if other non-aluminum additives such as ferric chloride are used. This may be problematic due to the use of cloth disc filters which are marginally sized to handle the existing solids loading. The additional solids load associated with increased phosphorous precipitation may also negatively impact the filtering operation.

2c) EPA's *Phosphorous Removal Design Manual*, (EPA/625/1-87/001) indicates that the lower limit of phosphorous removal with the use of metal salts is approximately 0.5 mg/l. Given the capacity constraints of the existing filtration process and limitations of the chemical addition process, it is not realistic to expect that the existing facility can achieve 0.2 mg/l simply by adding more alum or ferric chloride. Also, according to WWTF operators the use of ferric chloride will impede the ultra violet disinfection system as well as the cloth disc filters. The Town is committed to optimize the phosphorus removal by evaluating other coagulants or enhancing the anoxic tanks.

2d) While this evaluation is ongoing, the Town requests a rolling average permit limits to meet the new phosphorus limits. Water quality-based limits that are developed to protect against chronic impacts such as eutrophication are typically established as monthly average limits.

> For the phosphorus limit in this permit, the 60-day rolling average limit has advantages over a monthly average limit: it provides the permittee with flexibility to deal with occasional, perhaps unavoidable, excursions above limits, while at the same time necessitating that such excursions are short-term and that optimum removal efficiencies are maintained overall. Short-term exceedences of the phosphorus limit are unlikely to result in a significant response in the receiving water relative to aquatic plant growth. Longer term exceedences capable of eliciting a response in plant growth would likely result in a violation of the rolling average limit.
>
> The 60-day rolling average will enable the best possible performance on any given day since the results for that day will be averaged with the other data points to determine compliance. The uncertainty of future results that will be used for determining compliance dictates the best possible performance on any given day. Short-term excursions will have to be responded to quickly in order to ensure compliance. In contrast, a 30-day (monthly) average limit can result in relaxed performance towards the end of the 30-day period if performance early on in the period exceeded what was necessary to meet the permit limits. EPA has already set precedence by allowing rolling averages in other WWTF NPDES permits in New England (e.g. 60-day rolling average for phosphorus – Winchendon MA NPDES #MA0100862; 214-day seasonal rolling average for total nitrogen – Exeter, NH NPDES #NH0100871. The Town of Ayer requests that the phosphorus limits be based on a 60-day rolling average.

Response No. 2:

Ayer's discharge is approximately 7 river miles above the Pepperell Impoundment. In river Segment MA81-05, there is currently an excess of available phosphorus with little expectation of attenuation prior to reaching the impoundment. Therefore, the draft TMDL and Final Permit limit total phosphorus from Ayer and other discharges further upstream of the impoundment.

Response No. 2a:

The Permittee has stated that *According to the MADEP, the Final TMDL of the Nashua River is due within weeks of the comment period end date.* EPA Region I's Water Quality Branch reports that the MassDEP has withdrawn the 2013 draft TMDL and has not yet set a date for resubmission for EPA concurrence.

EPA may not wait for the TMDL to become final to place Water Quality Based Effluent Limitations (WQBELs) in the final permit. Water quality based effluent limitations in NPDES permits must be "consistent with the assumptions and requirements of any *available* [emphasis added] wasteload allocation." 40 C.F.R. § 122.44(d)(1)(vii)(B). Thus, an approved TMDL is not a precondition to the issuance of an NPDES permit for discharges to an impaired waterway.

This interpretation is consistent with the preamble to 40 C.F.R. § 122.44(d)(1), which expressly outlines the relationship between subsections 122.44(d)(1)(vi) (i.e., procedures for implementing narrative criteria), and (d)(1)(vii). The draft TMDL remains the best available science to produce limits for phosphorus.

The WQBEL for total *phosphorus* is in the final permit as required by regulation, accompanied by a compliance schedule which establishes an achievable interim aluminum limit.

The interim limit for total recoverable aluminum allows the permittee to use aluminum based salts to achieve the total phosphorus limit. The compliance schedules found in the final permit are based on planning done by the Town and their consultants as result of the draft permit.

Response No. 2b:

In order for EPA and MassDEP to modify and/or remove the total recoverable aluminum limit from the permit, the permittee must demonstrate that there is no reasonable potential for aluminum in the discharge to cause or contribute to an exceedance of the aluminum criteria in the Nashua River.

Response No. 2c:

The compliance schedule for total recoverable aluminum (see comment and response 5) in the final permit recognizes the need for additional time to meet the new WQBEL for total recoverable aluminum. The Town has said that it is *committed to optimize the phosphorus removal by evaluating other coagulants or enhancing the anoxic tanks*, as well as other steps to meet the new limits.

EPA will retain the current 200 ug/l total phosphorus limit found in the previous (February 2006) permit. Compliance schedules in permits may be used exclusively for new permit limits.

Response No. 2d:

EPA and MassDEP may not establish an interim limit or schedule of compliance for total phosphorus to comply with a limit that has been in effect since the issuance of the last permit.

Further, EPA Region I has moved away from phosphorus limits with averaging periods longer than 30 days to be consistent with regulations found at;

40 CFR §122.45 *Calculating NPDES permit conditions d) Continuous discharges. For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as: …2) Average weekly and average monthly discharge limitations for POTWs.* Therefore, the total phosphorus limit in the final permit remains an average monthly requirement.

Comment No. 3 (Part I-A.1 Effluent Characteristic Parameter): Total Recoverable Copper

We request that EPA acknowledge that the proposed copper limit is extremely stringent at 4.1 *u*g/l average monthly limit and a 5.6 *u*g/l maximum daily limit. Although the Town has had an effluent permit limit for copper, the new permit limits are ten (10) times more stringent.

The Commonwealth of Massachusetts's Water Quality Standards require that effluent limitations for metals be based upon the criteria published in the National Recommended Water Quality Criteria: 2002 (USEPA 2002 [EPA-822-R-02-047]), unless site-specific criteria are established or MADEP determines that natural background concentrations are higher than the criteria (314 CMR § 4.05(5)(e)). Recognizing that EPA's 2002 Recommended Water Quality Criteria for copper may be inappropriate, MADEP has developed site specific copper water quality criteria for many receiving streams in Massachusetts. These site specific criteria have typically resulted in significantly higher copper concentration limits for discharges to these receiving streams. MADEP has developed site specific criteria for the North Nashua River and the branch known as the South Branch but not segment MA81-05. The Town wishes to encourage Massachusetts to develop new site-specific copper criteria for this section of the Nashua River. The Town also requests the Draft Permit be reopened to address the copper limits if the site specific copper criteria in the Massachusetts Surface Water Quality Standards are updated to include segment MA81-05 of the Nashua River. The EPA has long recognized metal bioavailability and toxicity to be a function of water chemistry. The Biotic Ligand Model was developed to incorporate metal speciation and the protective effects of competing cat ions into predictions of metal bioavailability and toxicity. EPA currently recommends the use of this model for determining copper water quality criteria.

Given the inherent difficulty of complying with such a low copper limit, the Town requests that the limit be changed to "Report Maximum Daily" or that a much higher interim limit be established in order to give the Town time to evaluate sources of influent copper such as and the effects of implementing system wide corrosion control, septage sources and contributions from the SIUs and to evaluate various treatment alternatives to meet the limit. The treatment required to meet such a low copper limit would most likely involve chemical precipitation, ion exchange or reverse osmosis. The extensive modifications required to facilitate chemical precipitation at this scale and to this degree may make this option unfeasible.

The options of ion exchange and reverse osmosis are extremely expensive both in terms of capital cost as well as ongoing operation and maintenance costs. The Town will need time to evaluate potential options and run pilot scale testing in order to determine the most technically feasible and cost-effective option.

Response No. 3:

EPA and MassDEP included a schedule for achieving compliance with the new WQBEL for total recoverable copper in the Final Permit in recognition of the significant lowering of the limit. The more stringent Cu limits are a result of high background (upstream) concentrations of copper found in upstream Whole Effluent Toxicity (WET) testing dilution water samples provided by the permittee.

If the water quality standards for copper are changed by the State of Massachusetts, EPA will consider a request for a change in permitted total recoverable copper limits subject to anti-backsliding provisions found in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) as well as an anti-degradation review (see 314 CMR 4.04). The MassDEP has no current plan to revise the copper criteria for Segment MA81-05 of the Nashua River.

The permittee has committed to take additional upstream copper samples using sufficiently sensitive methods and clean techniques to establish clear picture of the instream contribution of copper in the river.

A review of recent effluent data demonstrates low total recoverable copper concentrations compared to most similar POTWs. The one exception, January 2014, occurred during a plant upset caused by a surge in filamentous bacteria.

Total Copper	47 ug/L	64 ug/L
MP Date	MO AVG	DAILY MX
09/30/2013	5.	5.
10/31/2013	5.	5.
11/30/2013	5.	7.
12/31/2013	5.5	8.
01/31/2014	33.5	60.
02/28/2014	3.	3.
03/31/2014	3.	4.
04/30/2014	4.	5.
05/31/2014	3.	4.
06/30/2014	6.	3.
07/31/2014	10.	10.

The compliance schedule for total recoverable copper sets an interim average monthly limit of 10 ug/l based on currently achievable copper concentrations, rather than "report only" as requested by the permittee. The maximum daily limit shall be report only as requested. The interim limits require the permittee to take reasonable measures to consistently meet the lowest possible copper discharge using the available treatment process.

Comment No. 4 (Part I-A.1 Effluent Characteristic Parameter): Total Recoverable Lead

Although the Town is frequently able to meet the average monthly limit for lead of 1.0 *u*g/l strict sampling and analysis procedures must be adhered to assure consistent compliance with this permit limit. The ability to meet this limit will be evaluated through a system wide source identification program as indicated in Comment 3 above and the effects of implementing corrosion control throughout the water system scheduled to come online in June 2014.

Response No. 4:

The following effluent data for total recoverable lead is the basis for an interim limit. The final permit includes a schedule of compliance for total recoverable lead. The interim limit is an average monthly concentration of 2 ug/l. The WQBEL for total recoverable lead is 1.0 ug/l.

Total Lead Data from Whole Effluent Toxicity Tests

Pb ug/l	**Effluent**	**Upstream**
12-Dec	<.5	1
12-Sep	<.5	2
12-Jun	<.5	3
12-Mar	<.5	0.9
11-Dec	1	1
11-Sep	<.5	3
11-Jun	<.5	3
11-Mar	<.5	2
10-Dec	0.7	1
10-Sep	2	2
10-Jun	<.5	3
Ave	1.35	2.09
Max	**2**	**3**

Comment No. 5 (Part I-A.1 Effluent Characteristic Parameter): Total Recoverable Aluminum

5.1) The Draft Permit proposes an effluent average monthly limit of 87*u*g/l for aluminum. From the WET data, the average in-stream aluminum concentration upstream of the WWTF is 0.084 mg/l, with a maximum of 0.140 mg/l.

The Town intends to sample instream just upstream of the Ayer discharge to gather more data points in the hope of proving that the aluminum water quality criteria is not being exceeded before it reaches the Ayer discharge and thus the limit might be revised, as necessary.

5.2) The Ayer WWTF consistently shows no acute toxicity but has noticed in the months of December 2011 and September 2012 a failed chronic toxicity test. Aluminum bisulfate is not added during December. It is also our understanding that there may have been problems or "issues of concern" relative to the sampling and testing to determine ambient metals concentrations in the river. If the ambient data is suspect, it cannot be reasonably used to establish such stringent limits for the permit. We request the opportunity to have the ambient metals concentrations in the river re-evaluated and further request that the metals limits be changed to "Report Maximum Daily" until data with a higher confidence level can be obtained.

5.3) MADEP has informed EPA that it is considering developing site-specific criteria for aluminum that reflect specific factors affecting aluminum toxicity. The development of site-specific criteria must meet the procedural requirements for changes to water quality standards, as well as receive EPA approval. As this is a lengthy process, and formal proceedings to change the standard have not commenced, EPA has decided to issue this Final Permit based on the existing criterion. If a site-specific criterion is adopted and approved during this permit term, the permittee may request modification of the permit. We request that the MADEP undertake such a study. If adopted by MADEP and approved by EPA, they may be used as the basis for a permit modification or during subsequent reissuance of the permit.

5.4) Furthermore, the addition of an aluminum limit will severely limit the Town's options for removing phosphorus and may result in increased operating cost to remove phosphorus in other manners since it will require the Town to use alternative chemicals, potentially produce more sludge, utilize more electricity, and increase its "carbon footprint". The proposed phosphorus limit (0.20 mg/l) cannot be achieved consistently without chemical addition as noted in Comment 2 above. Aluminum based metal salts have generally proven to be most effective and most cost-effective. The Town's options for achieving low level phosphorous limits should not be contravened by other aspects of the permit such as the proposed limit on aluminum since it could create an untenable situation for the Town.

> We request that the limit on total recoverable aluminum be changed to "Report Maximum Daily" until such time that site-specific criteria are developed for segment MA81-05 of the Nashua River.

Response No. 5.1:

The more stringent total recoverable aluminum limits are a result of high background (upstream) concentrations of aluminum found in Whole Effluent Toxicity (WET) testing dilution water samples provided by the permittee. The permittee has committed to take additional upstream aluminum samples using sufficiently sensitive methods to establish a clear picture of the instream contribution of aluminum in the river. If conclusive data shows that the upstream aluminum concentration is consistently lower than previously reported, EPA and MassDEP may consider modifying the permit to adjust the WQBEL limitation subject to anti-backsliding provisions found in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) as well as an anti-degradation review (see 314 CMR 4.04). The MassDEP has no current plan to revise the aluminum criteria for Segment MA81-05 of the Nashua River.

Response No. 5.2:

With the advent of different ways (chemical specific, bio-monitoring, and whole effluent toxicity) of assessing the health of aquatic systems comes the possibility of conflicting results. To address such conflicts, EPA developed the policy of independent application. Independent application states that where different types of monitoring data are available for assessment of whether a water body is attaining aquatic life uses or for identifying the potential of pollution sources to cause or contribute to nonattainment of aquatic life uses, any one assessment is sufficient to identify an existing or potential impact/impairment, and no one assessment can be used to override a finding of existing or potential impact or impairment based on another assessment.

> The independent application policy takes into account that each assessment provides unique insights into the integrity and health of an aquatic system. In addition, each assessment approach has differing strengths and limitations, and assesses different stressors and their effects, or potential effects, on aquatic systems… EPA's policy on independent application is based on the premise that any valid, representative data indicating an actual or projected water quality impairment must not be ignored when determining the appropriate action to be taken. Independent application recognizes the strengths and limitations of all three assessment approaches.[1]

Following the policy of "independent application" EPA has set chemical specific limits for total recoverable aluminum despite the permittee's assertion that WET tests demonstrate no apparent toxicity. Further, the permit must include numeric limits for total recoverable aluminum, rather than a monitor only condition based on 40 CFR §122.44(d)(1)(i) which reads;

[1] Federal Register: July 7, 1998 (Volume 63, Number 129) - Advance notice of proposed rulemaking

Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.

Response No. 5.3:

Both EPA and MassDEP do not currently have the resources to study site specific aluminum criteria for Nashua River in Ayer. As noted in response 5.2, EPA and MassDEP must include WQBELs to protect current water quality criteria.

If the water quality standards for aluminum are eventually changed by the State of Massachusetts, EPA will consider a request for a modification of the permitted total recoverable aluminum limits subject to anti-backsliding provisions found in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) as well as an anti-degradation review (see 314 CMR 4.04). The MassDEP has no current plan to revise the aluminum criteria for Segment MA81-05 of the Nashua River.

Response No. 5.4:

A review of quarterly effluent total recoverable aluminum concentrations for the years 2010 through 2012 show a maximum effluent concentration 1.3 mg/l with an average concentration of 0.3 mg/l. To reduce the impacts of eutrophication from too much phosphorus in the Nashua River and Pepperell Impoundment, EPA and MassDEP recognize the benefits of the continued control of phosphorus in the POTW effluent, therefore, EPA and MassDEP shall include a compliance schedule for total recoverable aluminum with an interim limit of 1.3 mg/l. The permit will retain the WQBELs on the limits page with a footnote containing a reference to the interim limit and schedule.

Comment No. 6 (Part I-A.1 Effluent Characteristic Parameter): WET

The Town notes that the previous permit had one protocol that combined both the acute and the chronic tests. We understand that the requirements for WET changed in March 2013 to a standalone test. There is an increase in cost to do this test four times per year. The Town understands should the results of the WET show no indication [of toxicity], the frequency of this test from 4/YEAR may be reduced without modification of the permit.

Response No. 6:

The number of WET test species were previously reduced from 2 to 1 during the July 28, 2000, permit reissuance, based on demonstrated compliance with the WET limits. The compliance schedules for three metals run the duration of this permit term. EPA looks to WET testing to protect the receiving waters during this period of significant

process change at the treatment plant. WET testing frequency will be reviewed again at the next permit reissuance.

Comment No. 7 Part I-C. OPERATION OF THE SEWER SYSTEM

The Town is in the process of implementing the requirements of the CMOM and believes these will be beneficial to the long term operation and maintenance of the Town of Ayer collection system.

Response No. 7:

The permittee's comment does not request a change or question the contents of the draft permit and therefore, a further response from EPA and MassDEP is not required.

Comment No. 8 Part I-E. INDUSTRIAL PRETREATMENT PROGRAM (Fact Sheet) page 20 of 24

The DRAFT permit annual Industrial Pretreatment Program report submittal date as November 30th.. The November 30th submittal date is best suited for the timing of the fourth quarter significant non-compliance evaluation and the compilation of the necessary data for the report submittal. The date for submittal should be revised in the Fact sheet to reflect the November 30th date not November 1.

Response No. 8:

The November 30th submittal date found in the permit is correct. This response to the comment serves to correct the fact sheet.

Comment No. 9

The spikes in Total Residual Chlorine and fecal coliform bacteria are troublesome. We trust the new UV disinfection system to be installed by the plant will alleviate the spikes in bacteria, and will also eliminate the use of chlorine for disinfection.

Response No. 9:

The ultraviolet disinfection replaced chlorine in April of 2013. The Town has reported compliance with the bacteria limits with the exception of the period, January through March of 2014, during a plant upset caused by a surge in filamentous bacteria. See the following Discharge Monitoring Report data.

Effluent Fecal Coliform Results

	200 #/100mL	400 #/100mL
MP Date	MO GEO	DAILY MX
04/30/2013	5.8	26.5
05/31/2013	7.1	49.5
06/30/2013	8.2	62.
07/31/2013	1.9	5.3
08/31/2013	3.6	18.
09/30/2013	3.1	34.
10/31/2013	1.2	2.
11/30/2013	6.5	99.
12/31/2013	6.	82.
01/31/2014	7.8	725.
02/28/2014	--	--
03/31/2014	16.4	491.
04/30/2014	7.3	80.
05/31/2014	1.	1.
06/30/2014	4.6	65.
07/31/2014	5.2	147.

Comment No. 10:

The NRWA questions if the approach to calculating the total phosphorus (TP) limit is sufficiently protective. Equal weight was given to all of the tributaries downstream of the North/South Nashua confluence. A tributary with higher in stream concentration may also have a larger average flow and P load. Averaging the load may under estimate the TP contribution from other sources.

Response No. 10:

MassDEP conducts watershed assessments on a 5 year revolving cycle. *The intensive* [monitoring] *program, carried out in 1998 was augmented by data collected in 2003 and 2008 with expansion into the un-assessed tributaries for non-point source monitoring. Quality Assurance Project Plans developed for the monitoring programs are available on the MassDEP website.* The ongoing watershed assessments will allow better calibration of the TMDL and validation of the waste load model.

Data collected in 2003 was used in the August 29, 2013 Fact Sheet as it had undergone rigorous quality assurance before release. Aggregate data from 3 tributaries was combined and averaged to establish a TP concentration of 0.024 mg/l to be used in calculating the non-point source load.

The following data table provides separate TP average concentrations for each of the 3 tributaries previously aggregated as 1.

Stream	Catacoonamug Brook	Nonacoicus Brook	Catacoonamug Brook
Drainage area In Square Miles	20	18.9	15.6
4/9/2003	0.01	0.011	0.01
5/7/2003	0.02	0.024	0.018
6/11/2003	0.022	0.032	0.026
8/13/2003	0.026	0.044	0.032
10/8/2003	0.016	0.022	0.015
Average	**0.019**	**0.027**	**0.020**

The range of TP average concentrations for the 3 brooks is from 0.019 mg/l to 0.027 mg/l. All 3 brook TP concentrations are within 21% of the 0.024 mg/l concentration established in the Fact Sheet. When each of the individual brook average TP concentrations are placed in the mass balance equation from the fact sheet that projects total phosphorus concentration downstream of WWTP, the results are within a range of 1%.

$$\frac{(33.35)(0.1)+(1.89)(0.019)+(2.77)(0.2)}{33.35+1.89+2.77} = 0.103 \text{ mg/l}$$

$$\frac{(33.35)(0.1)+(1.89)(0.020)+(2.77)(0.2)}{33.35+01.89+2.77} = 0.103 \text{ mg/l}$$

$$\frac{(33.35)(0.1)+(1.89)(0.024)+(2.77)(0.2)}{33.35+01.89+2.77} = 0.104 \text{ mg/l}^*$$

$$\frac{(33.35)(0.1)+(1.89)(0.027)+(2.77)(0.2)}{33.35+1.89+2.77} = 0.104 \text{ mg/l}$$

*Note that 0.104 mg/l is a corrected value. The 0.107 mg/l value in the Fact Sheet was an error.

The calculated total phosphorus limit of 0.2 mg/l in the permit is consistent with the proposed average monthly limit in the most recent (2013) Draft Nashua River Total Maximum Daily Load for the Nutrient Phosphorus which includes data from a *MassDEP and USEPA sampling program in 2003 and 2004 to update water quality data and provide assessment of tributaries*[2]

The Draft TMDL notes that tributaries without point source discharges may have larger quantities of phosphorus, but in a much less reactive form, less readily available for uptake by algae than the dissolved phosphorus from the WWTFs. This is consistent with EPA's focus on the total phosphorus in the upstream effluent dominated North and Main Stem Nashua Rivers.

[2] Draft Nashua River, Massachusetts -Total Maximum Daily Load for the Nutrient Phosphorus, MassDEP DWM (Report # 81–TMDL-2007-2) Page 6

Additionally, the TMDL includes a margin of safety to protect the river from technical errors that might contribute to a permit limit that may be too great.

EPA and MassDEP are confident that the TP concentration used in the Fact Sheet is appropriate and will not lead to a significant under estimate of the TP contribution from non-point (other) sources.

Address Change:

Please note that the address for the MassDEP Central Office has changed since the end of the public notice. The final permit reflects the new address. See Page 17 of 18.

Duplicate signed copies of all reports or notifications required above shall be submitted to the State at the following address:

MassDEP – Central Region
Bureau of Resource Protection
8 New Bond Street
Worcester, Massachusetts 01606

Toxicity test reports only shall also be submitted to the State at the following address:

Massachusetts Department of Environmental Protection
Watershed Planning Program
8 New Bond Street
Worcester, Massachusetts 01606